Forestry Preharvest Planning Tool (FPPT)

User's Guide

Web Application User Guide

Prepared by the NC Forest Service

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INTRODUCTION

The NC Forestry Preharvest Planning Tool (FPPT) was designed as a free online application to help North Carolina's forestry professionals, landowners, and the general public understand and take advantage of the capabilities of a Geographic Information System (GIS) when planning forest management activities, such as timber harvests.

There is no software to purchase or learn—all you need is an internet connection and a web browser to access aerial imagery, topographic maps, road maps, parcel information, U.S. Geological Survey stream features, National Wetland Inventory data, threatened and endangered species, and Natural Resource Conservation Service (NRCS) soil maps for the entire state of NC, all in one place.

A user-friendly point-and-click interface allows for easy integration of these data sets to support informed planning of timber harvests. These types of electronic maps, combined with on-the-ground reconnaissance, can help identify the location of decks, roads, skid trails, streamside management zones, and other BMPs that will minimize risks to water quality and soil erosion during and after the harvest. The FPPT has built-in tools to allow the user to mark these locations—and any other features of interest—on their map. The map can be saved electronically and emailed or printed.

Development of the FPPT by the NC Forest Service was made possible by a grant from the US Forest Service's State & Private Forestry (Southern Region) Competitive Resource Allocation program.

Overview of the Forest Preharvest Planning Tool (FPPT)

The FPPT is a custom-build, web-based user interface that was designed to allow both non-technical users as well as those more experienced GIS users to effectively use spatial data to plan timber harvests and other forest management tasks. There are two primary types of outputs that can be created using the FPPT: *custom maps* and *tract reports.*

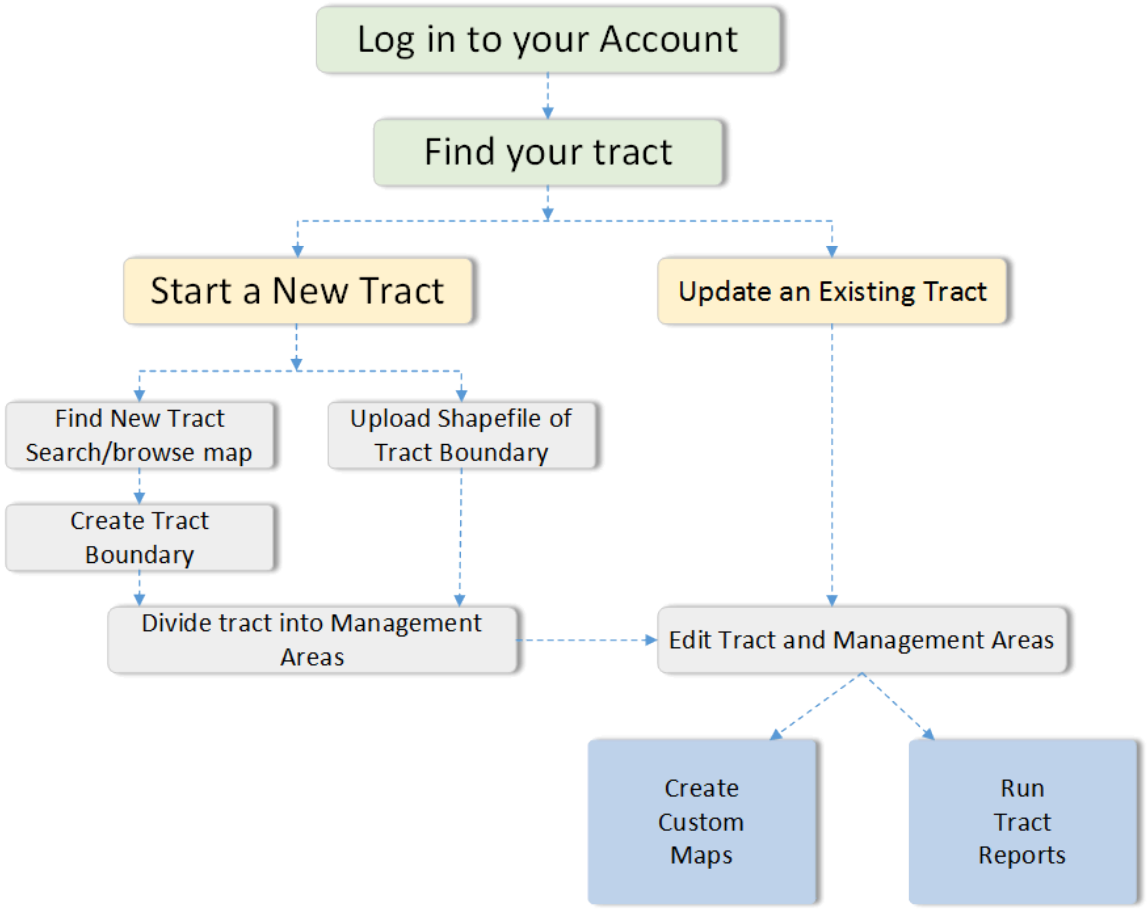


Figure 1 Forestry Preharvest Planning Tool work flow

Contact Information

The Forestry Preharvest Planning Tool was developed and is maintained by the NC Forest Service. To report technical issues with the Forestry Preharvest Planning Tool, receive extra guidance on using the FPPT, or to request in-person training for your group, please contact fpptsupport@ncforestatlas.com

For general information on preharvest planning, please visit Preharvest Planning. Our local NCFS County and District offices can provide assistance with preharvest planning on your specific tract. See Water Quality Contact Page for contact information.

Browser Compatibility

Browser Name	Version(s)	Compatibility Issues
Chrome		
Edge		
Firefox		
Internet Explorer		Problematic with some versions

User Guide Terminology

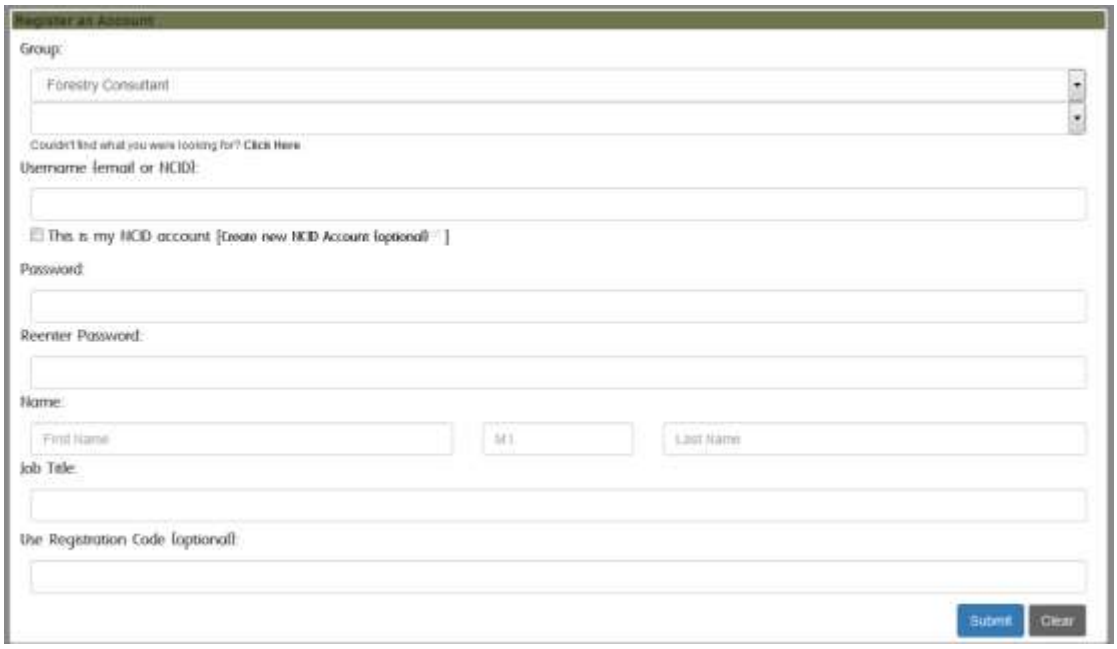
Abbreviation	Definition
BMP	Best Management Practice
FPG	Forest Practice Guideline
FPPT	Forestry Preharvest Planning Tool
CLICK	Left Mouse Click
NCDEQ	North Carolina Department of Environmental Quality
NCDWR	North Carolina Division of Water Resources
NCFS	North Carolina Forest Service
NCID	North Carolina Identity Service
SMZ	Streamside Management Zone
USGS	United States Geological Survey

ACCOUNT SETUP

Creating an Account

When you arrive at the FPPT home page, CLICK *Register Account*.

You will then be directed to fill out the *Registration Form* with information such as: Group, Organization, Username, Password, Name, Job Title, and an optional Use Registration Code. Information entered on this form can be edited once your account is created.



Group

The first drop down allows you to specify the type of group you belong to. If you do not see your specific group type listed, you can choose *Other Public* or *Other Private*. The second drop down allows you to specify the name of the organization you belong to within that group.

If you do not see your organization listed in the second drop down menu, you can manually enter your information by clicking '**Click Here'** after "*Couldn't find what you were looking for?* ***Click Here***." This will change the second drop down from a menu to a text box, where you can enter the correct information.

Username and Password

If you are <u>not</u> an NCID user:

Enter your email address as your user name. Auto generated emails from the application, such as links to your customized reports, will be sent to the same email address.

Enter the password you would like to use while accessing the application. Re-enter the same password in the next box. A few security tips for choosing a password:

- Use a combination of capitalization, numbers, letters, and symbols
- Avoid common words when possible
- Pass phrases can be easier to remember **and** more secure

If you <u>are</u> an NCID user:

Enter your NCID as your user name. Auto generated emails from the application, such as links to your customized reports, will be sent to the email address associated with your NCID account.

You will not be able to enter or re-enter a password at this screen. Your password will be the same password that you use to log in to your NCID accounts. If you change or update your NCID password, the information will be automatically updated on the FPPT.

Name

These three fields allow you to enter your first name, middle initial, and last name.

Job Title

In this field, you can enter your specific job title.

WEB APPLICATION OVERVIEW

Site Navigation

When on the home page of the FPPT, the following options are available to select (see figure below).

Home Tab

At any point in the application, when you click the *Home* tab, you will be returned to the *Find Tract* screen. The *Find Tract* screen allows you to start a new tract or edit an existing tract.

Support Tab

The support tab provides information about the purpose of the FPPT along with a workflow diagram that displays the natural progression of projects using this application.

Contact Tab

The contact tab provides links that will direct you to the North Carolina Forest Service website, FPPT support e-mail, general information on preharvest planning, and contact information for water quality.

Disclaimer Tab

The disclaimer tab provides important information about the intended use of the application, end-user liability release information, and information about the approximation of results. It is extremely important that you **review this information** to fully understand that this information does not replace the need for visiting the site.

Administration Tab

The administration tab provides useful tools for account, group, and user management:

The *Profile tab* allows you to review and edit your account information. Here, you can add or edit your username, name, job title, telephone number, physical address, group, tract sharing rights, and transfer tracts.

The *Group tab* allows you to search for a specific group using the group name and group type, as well as add a group if it is not currently listed in the FPPT database.

The *Users tab* allows you to search for specific user(s) based on username, name, group, email address, and account role.

Logout Tab

You can logout of your FPPT account on the regular screen or from within the administration tab. Ensure that you log out of the FPPT after use if you would not like others to access your information. The application contains a time-out feature, which will automatically log-out after a set amount of time, but manually logging off each time will help prevent another user from accidently altering or deleting your existing tracts.

Using the Map Viewer

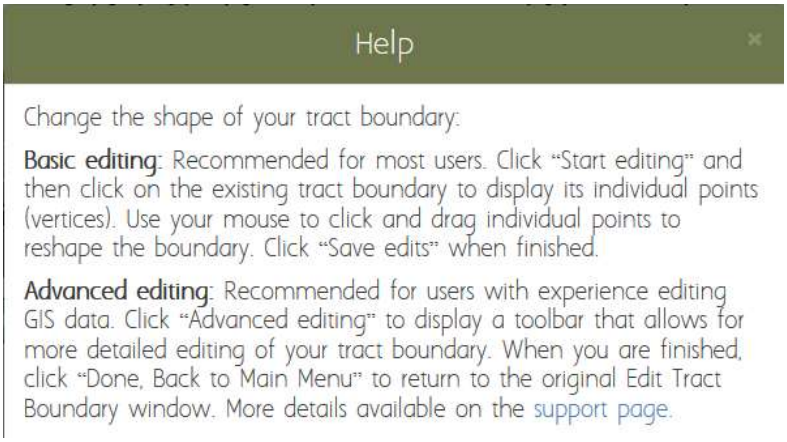
This section will provide general information on navigating within the map viewer, obtaining help, displaying specific information, and customizing how you view or interact with the map data.

Map Zoom 

Using the zoom feature within the map viewer allows you to obtain a closer view of the map (zoom in) and a view further away (zoom out). Certain layers, such as *Parcels,* are not visible at all scale ranges. In order to view *Parcels*, which will be highlighted the color yellow, you will have to zoom in on the mapping window until they are displayed. If your mouse has a scroll wheel, you can also zoom in by rolling the wheel *up* and zoom out by rolling the wheel *down*.

Help 

The help icon provides a few tips and hints to consider while navigating the map in the selected parcels window and using the *Basic Editing* or *Advanced Editing* tools in the map viewing window.



Home 

The home button, located on the left side of the map viewing window, will allow you to return to the Management Tract Home Page. This button will only display in the edit tract boundary or add management areas map viewing windows.

Layer List 

The map viewer allows the user to select from different available layers. Layers are turned off and on by selecting the check box. If a box is grey, it means that the data layer is not visible at the current scale – zoom in until the box is no longer greyed out.

Clicking the red symbol, located to the right of the check box, will present a preview of the symbology associated with that data layer (see figure below).

Base Data Layers

Available layers that are initially provided include:

Layer Name	Geometry	Description
Parcels	Polygon	A piece or unit of land, defined by a series of measured straight or curved lines that connect to form a polygon.

County Boundary	Polygon	
Municipal Boundary	Polygon	
River Basins	Line	The land that water flows across or under on its way to a river.
Rivers and Streams	Line	
NWI Wetlands	Polygon	
Coastal Wetlands	Polygon	
Contour lines	Line	Line(s) on a map that connects points of equal elevation based on a vertical datum, usually sea level.
Railroads	Line	A track or set of tracks made of steel rails along which passenger and freight trains run.

Add Features to GIS Database 

Adding features to the GIS Database allows the user to input points of interest for the following layers:

Point Features

Point features can be added to your management area by selecting the feature in the *Add Features to Database* window and CLICK on the map where you would like to place that feature.

Line Features

Line features can be added to your management area(s) by selecting the feature in the *Add Features to Database* window > CLICK to begin your line > click each time you would like to create a new segment > double CLICK to complete your line feature.

Polygon Features

Polygon features can be added to your management area(s) by selecting the feature in the *Add Features to Database* window > single CLICK to begin your polygon > click each time you would like to create a new vertex > double CLICK to complete your polygon feature.

You do not need to align your first CLICK and final CLICK, as the application will automatically connect the polygon feature after you double CLICK.

User Defined Data Layers

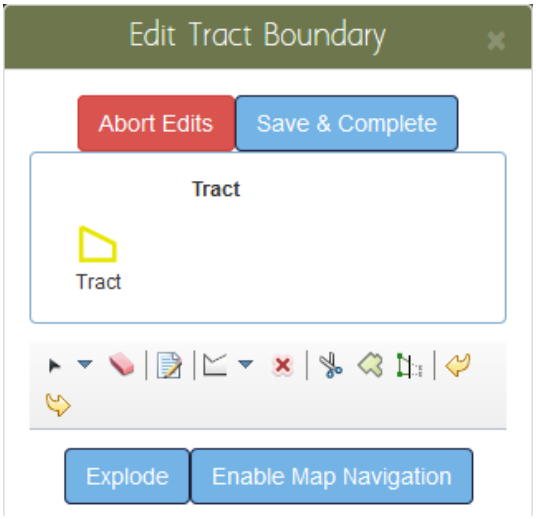
Layers that are available for the user to edit during map customization are:

Layer Name	Geometry	Description
Access Points	Point	A temporary or permanent point of entry into a land parcel.
Access Roads	Line	A temporary or permanent road into a land parcel.
Fence	Line	A barrier, railing, or other upright structure, typically of wood or wire, enclosing an area of ground to mark a boundary, control access, or prevent escape.
Logging Deck	Point	An area designated on a logging job for the temporary storage, collection, handling, sorting and/or loading of trees or logs. Also known as Landing.
Management Area	Polygon	
Management Tract	Polygon	
Skid Trail	Line	Temporary, non-structural pathways over forest soil where felled trees or logs are dragged to a landing.
Slash/ Laps	Point	The residue, e.g., treetops and branches, left on the ground after logging or accumulating as a result of storm, fire, girdling, or delimbing.
SMZ	Polygon	A designated area that consists of the stream itself and an adjacent area of varying width where management practices that might affect water quality, fish, or other aquatic resources are modified. The SMZ is an area of closely managed activity, not an area of exclusion.
Stream Crossing	Point	A means for forestry vehicles to cross streams without damaging the streambed or channel and protects the stream bank from degradation, compaction, and sediment or vegetation loss. Types of Stream Crossings include: Bridgemats, Culverts, Fords
Structure	Polygon	Man-Made Buildings or Natural Structures
Tools to Capture Sediment	Point	Brush Barriers, Straw Wattles, Straw Bale, Filter Areas, Check Dam, Silt Fence, Sediment Trap
Tools to Control Runoff	Point	Broad-Based Dip, Cross-Drain, Water Bar, Inside Ditchline, Turnout, Erosion Control Mat

User Defined Stream	Line	
User Defined Waterbody	Polygon	
User Defined Wetland	Polygon	
Utility Line	Road	Pipes, cables, lines, conduits, or wires constructed for the transmission of gases, liquids, electrical energy or communications, including the support poles or towers.

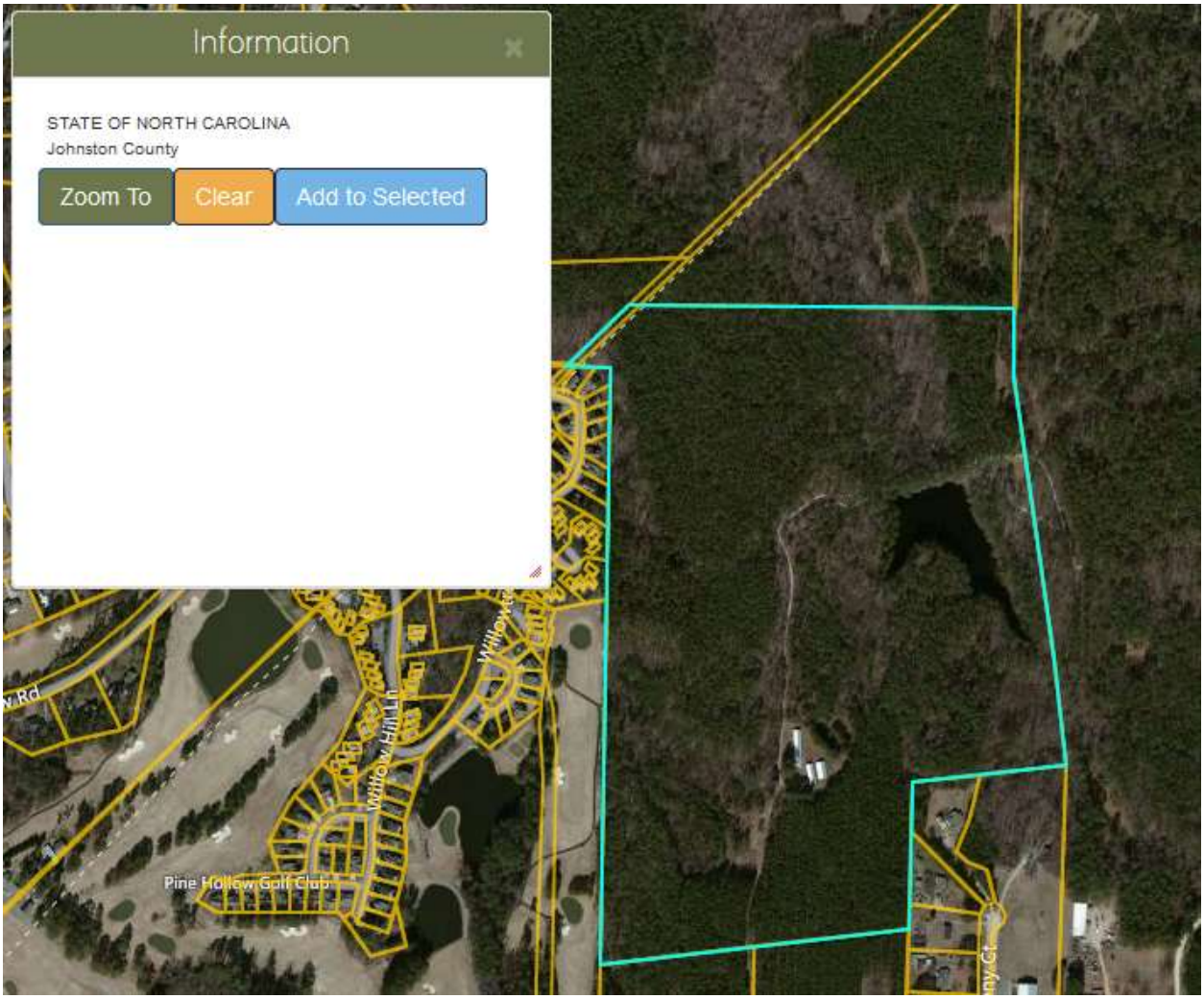
Edit Tools 

Edit Tools dialog box allows the user to do Basic Editing, Advanced Editing, & Edit Attributes.



Information 

The *Information* tab provides which parcels are within that area. When selecting a parcel from the information tab list, the parcel is highlighted in turquoise color outline. Information about the parcel owner is shown at the bottom of the information tab (Landowner's Name, parcel address). The information tab allows the parcel when selected to: 



Identify 

The *Identify* tool allows you to identify specific features on the map and review information about that feature. Examples of the information provided from this tool are: Tract ID, Date Created, Tract Acres, County Name, NCFS District, NCFS Region, Owner Last Name, Owner First Name, Owner Middle Name, Remarks, Latitude, Longitude, Tract Label, Tract Name, User Name, Share, Shape Area, and Shape Length.

Map Types

The map viewer allows the user to toggle between different *Base Map* types:

Base Maps

Base maps refers to any type of georeferenced imagery that is used as a background or backdrop for a map.

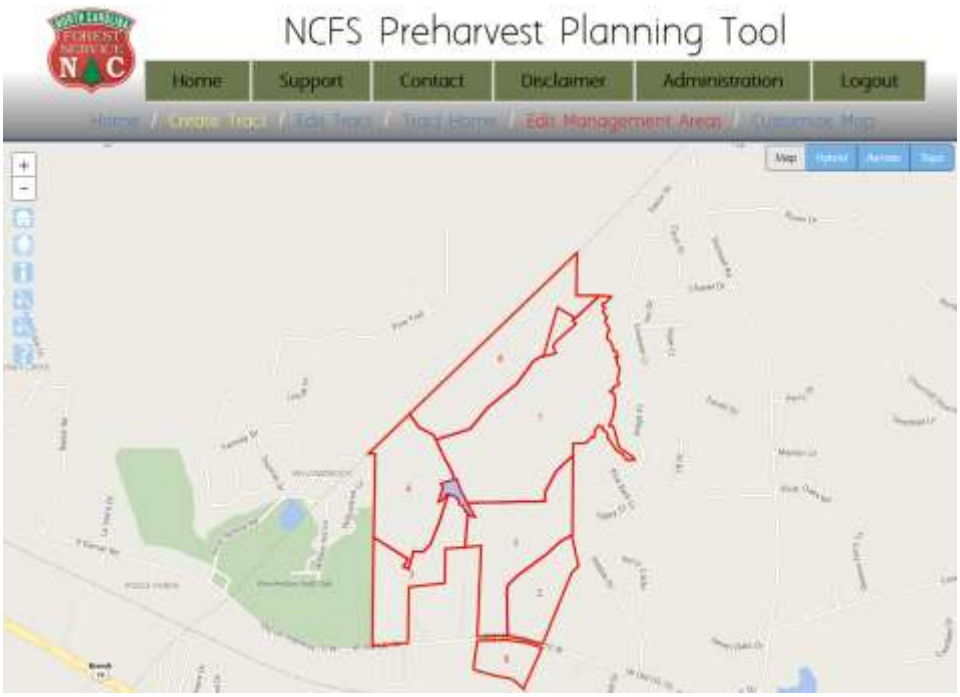
Aerial Photos (Imagery) and Street Maps

These base maps are pulled from Microsoft's Bing web mapping service. The age of the aerial photos, street locations, and stream names varies. Aerial imagery is likely to be several years old.

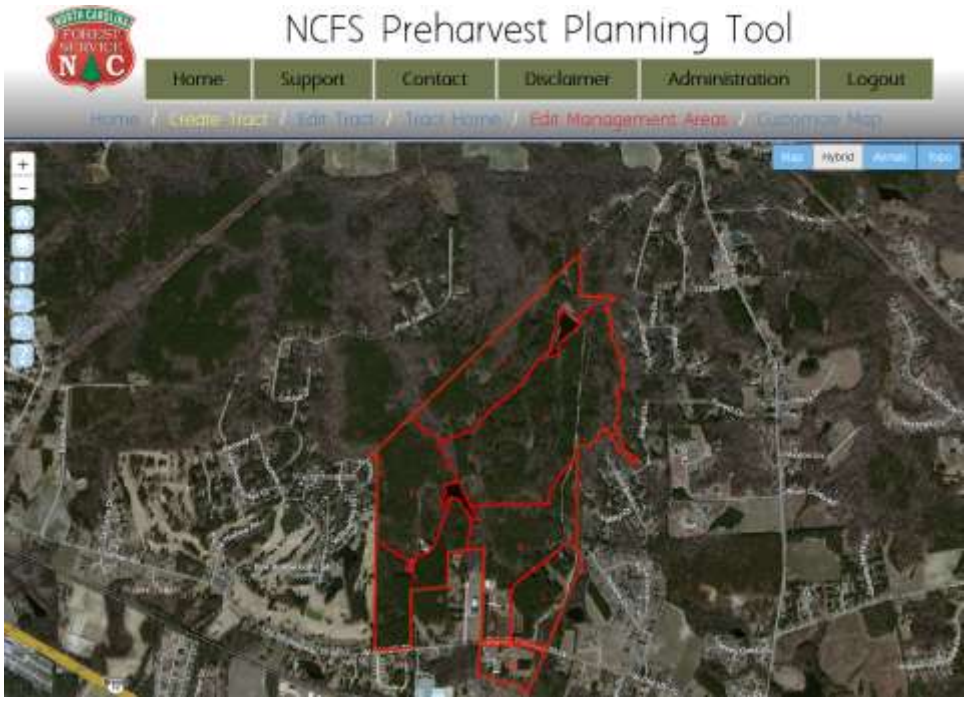
Topographic Maps (Topo Maps)

These base maps are scanned and georeferenced copies of the U.S. Geological Survey's 1:24,000 scale paper topographic maps ("quads") that are very familiar to the many people that have used them for navigating outside, for example such as hiking or hunting. Their main purpose is to show land topography and elevation (represented using contour lines), but also include features such as roads, towns, utility lines, railroads, water features (such as streams, rivers, lakes, and wetlands), boundaries (state, county, etc.), buildings, and forested areas. The USGS began phasing out updating the paper maps in the 1990's, when they began transitioning to the digital/GIS-based maps. However, the scanned versions of the historical topos are still commonly used, though users should realize that they will not accurately represent any changes that may have occurred since the last update of the paper topo, which may have occurred 2-3 decades ago or more.

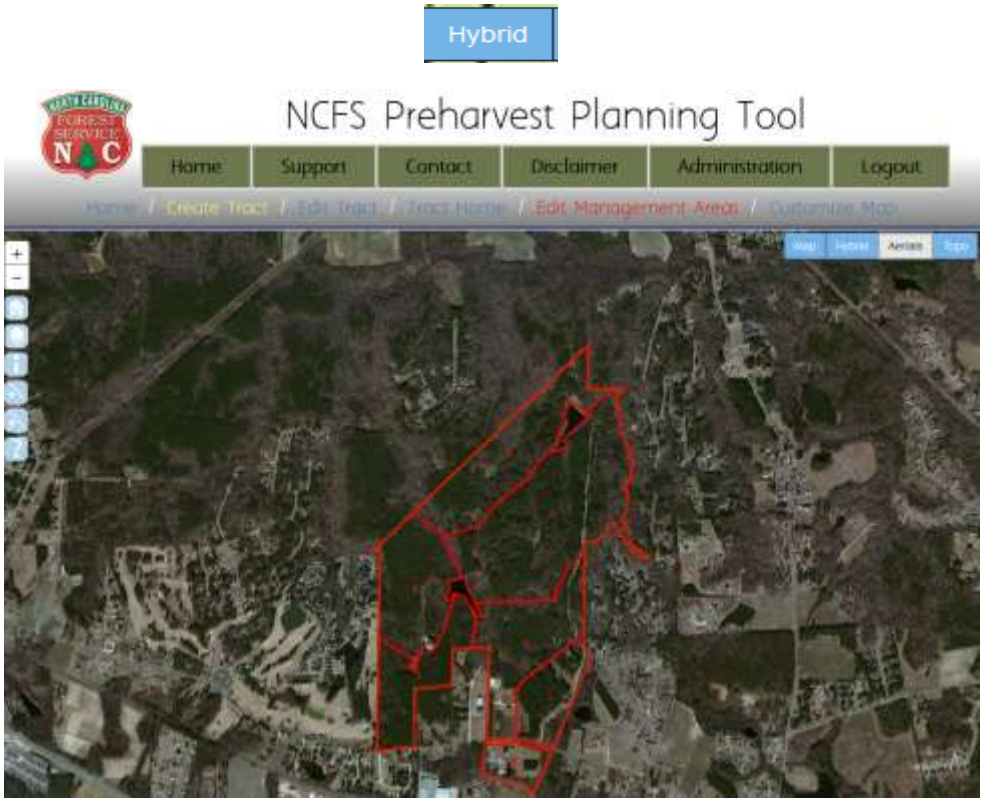
Examples of map types are shown below:



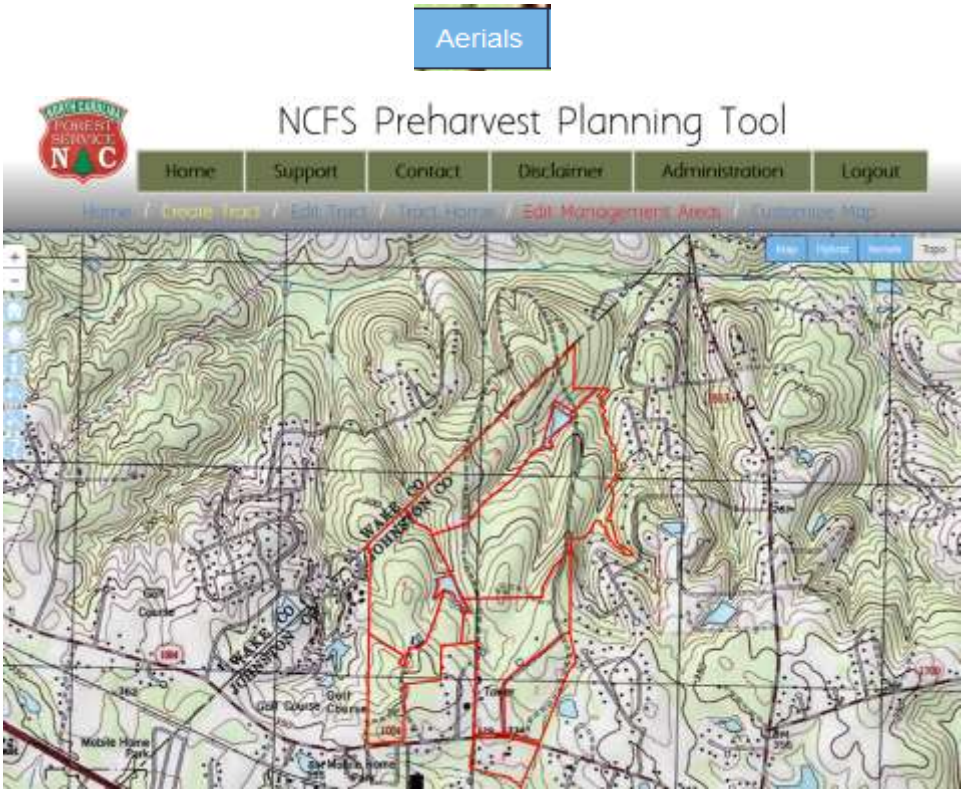
(Standard map view shown above)



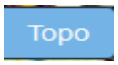
(Hybrid map view shown above)



(Aerial photo map shown above)



(Topo map shown above)



CREATING & EDITING TRACTS

Once you reach the application and log in, you will see the *Find Tract* screen:

Starting a New Tract

There are five options available when starting a new tract: Upload Shapefile and Zoom to Tract, Search by Address or Place Name, Search by County and Owner Name, Go to County View, and Go to Map Coordinates.

Each option provides a unique way to locate the desired area for your tract boundary and potential management areas.

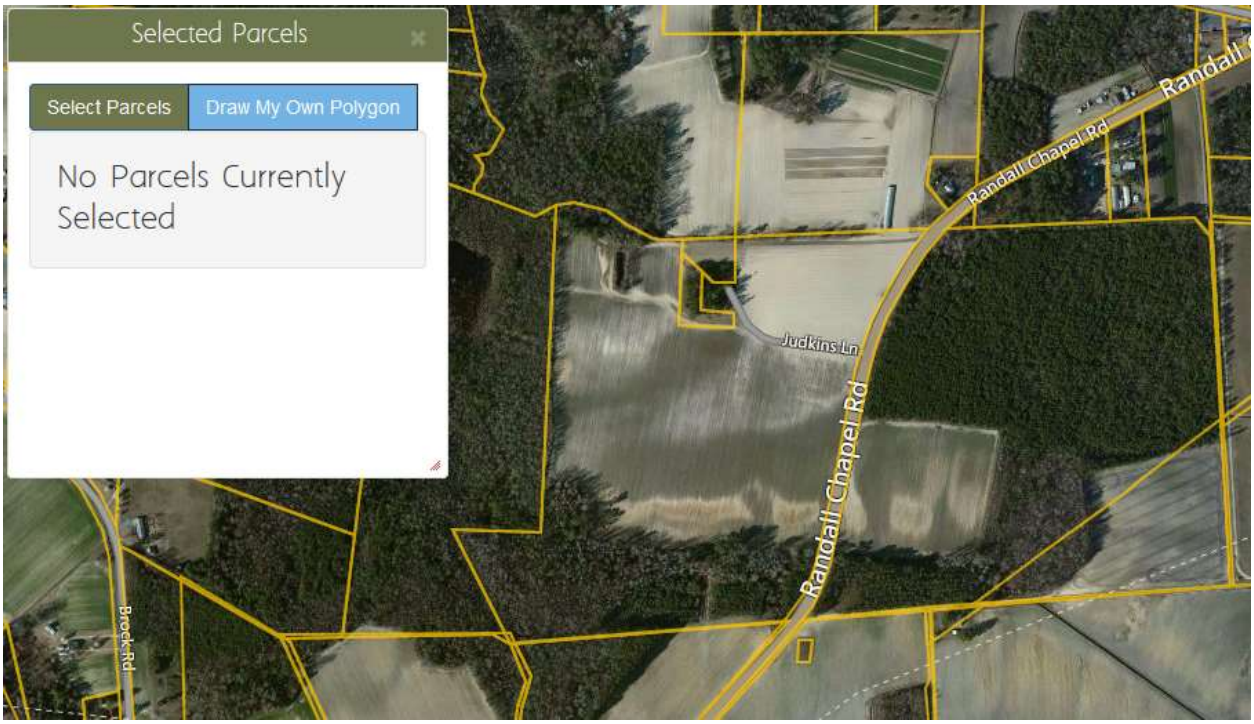
Upload a Shapefile

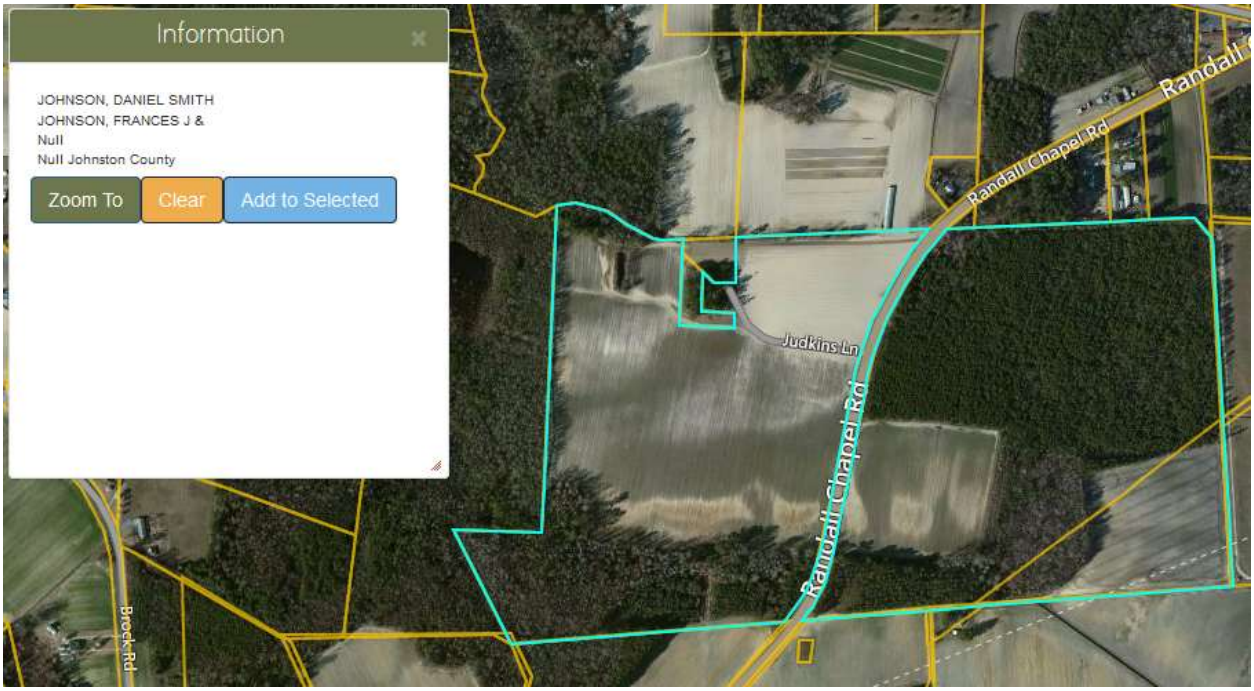
Using a shapefile to create your tract boundary will allow you to use existing GIS features that you currently use to represent forest tracts within the application. You will need to create a folder that contains only the shapefile you wish to use and ensure all associated file components are included within that folder. Required files for a complete shapefile include: .shp, .shx, .prj, and .dbf. There may be additional files that are associated with your shapefile, and including them in this zip folder WILL NOT negatively impact your upload. However, if you do not include additional files in the submission, there MAY be harm to your shapefile upload.

Use Selected Parcel Data

The selected parcels tab allows users to select parcels from map viewer. This tab also allows the user to *Draw My Own Polygon* which gives the user the ability to select parcel boundaries from the *draw tool*, thus creating a tract from drawn polygon.

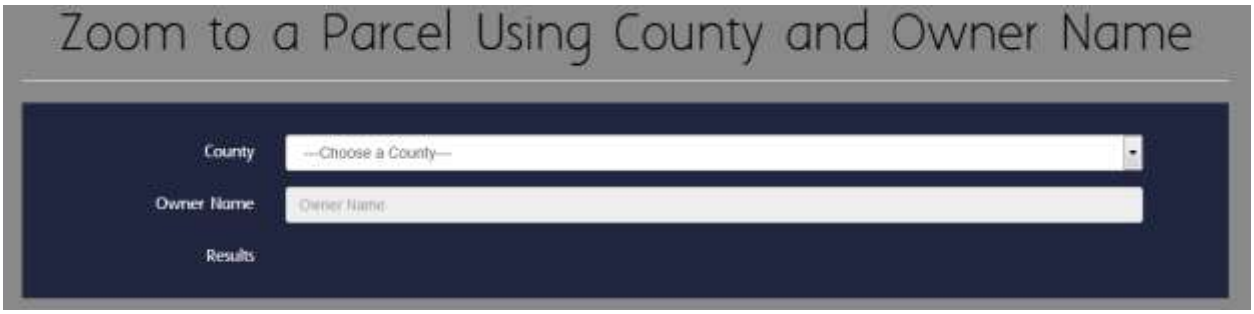
Select Parcels, Draw My Own Polygon, Create Tract from Selected Parcel(s)


Selected Parcels
Select Parcels
Draw My Own Polygon
No Parcels Currently Selected
Randall Chapel Rd
Judkins Ln
Brock Rd


Information
JOHNSON, DANIEL SMITH
JOHNSON, FRANCES J &
Null
Null Johnston County
Zoom To
Clear
Add to Selected
Randall Chapel Rd
Judkins Ln
Brock Rd

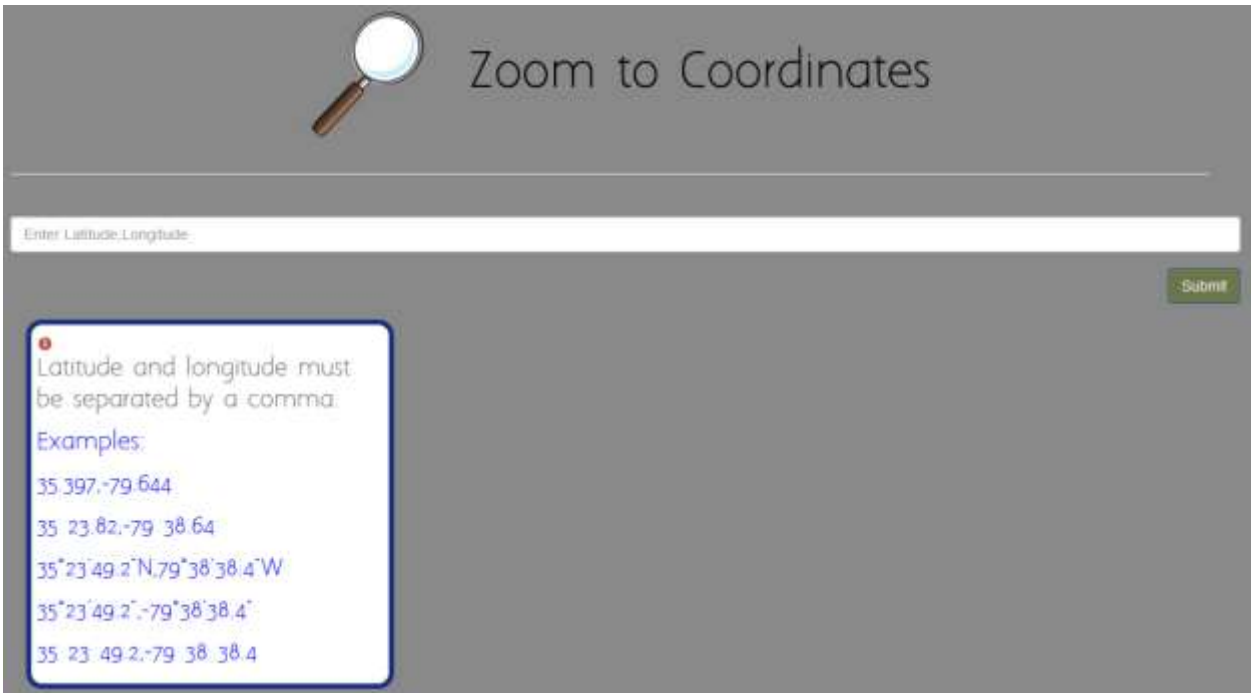
Search by Address or Place Name

Search by County and Owner Name

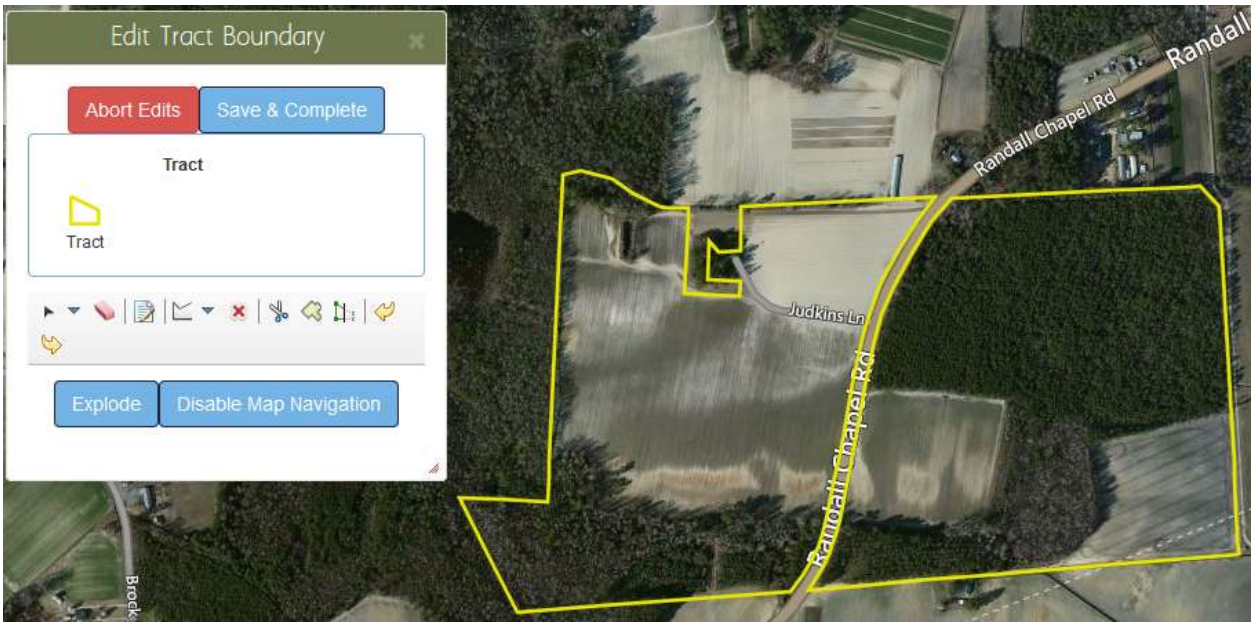


Go to County View

Go to Map Coordinates

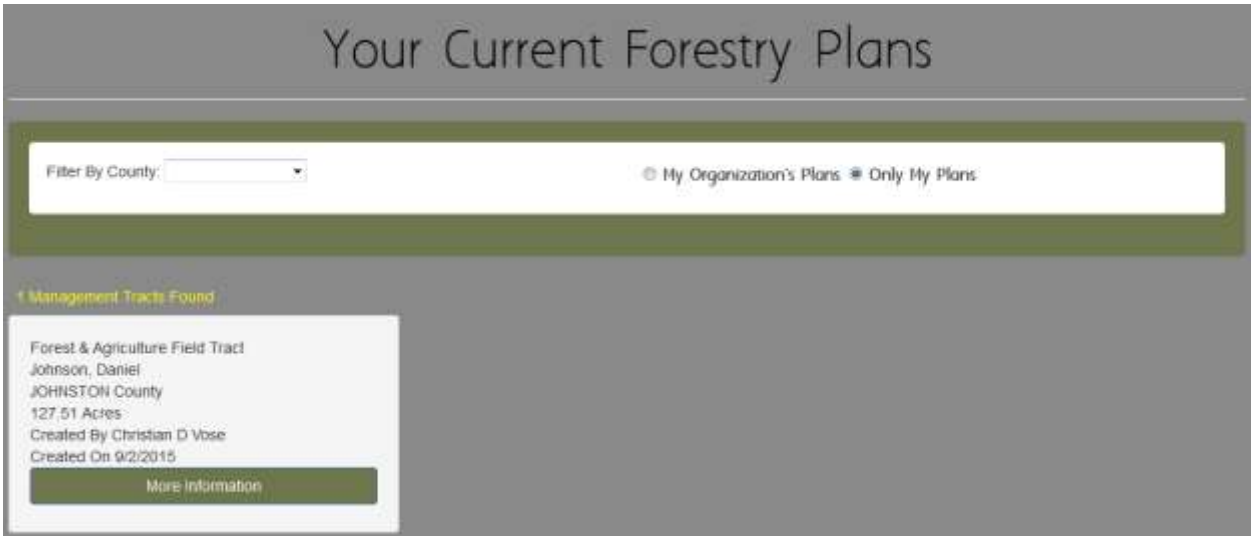


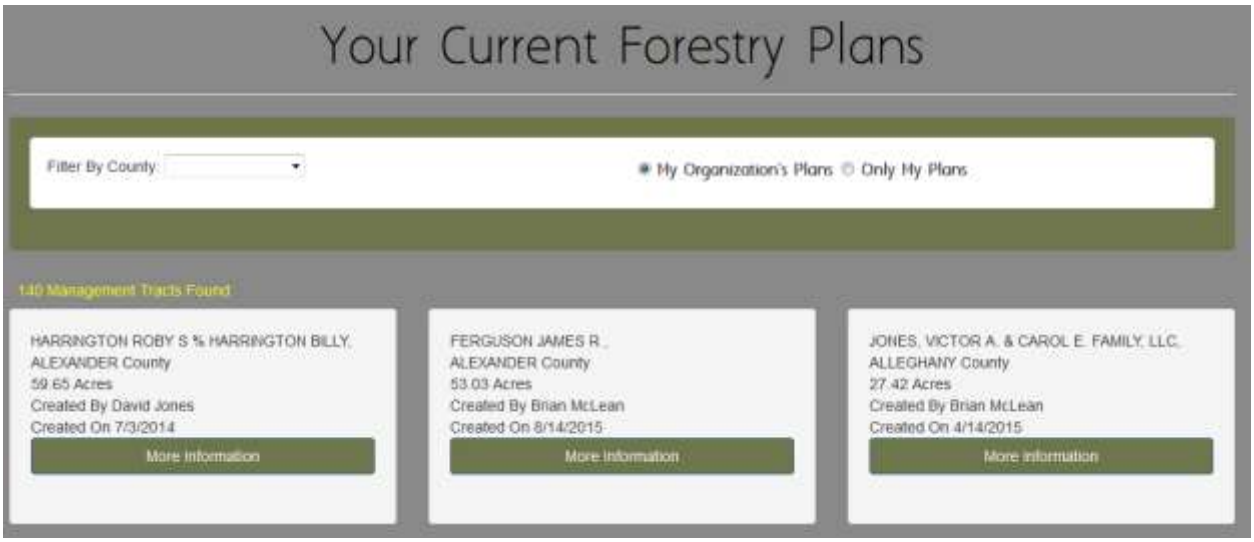
Edit the Tract Boundary



Edit an Existing Tract

Your Current Forestry Plans





The Preharvest Planning Tool allows the user to find an existing tract already created by the user or someone else to edit. Select from "My Organization's Plans or Only My Plans'. Filter by County is also available.

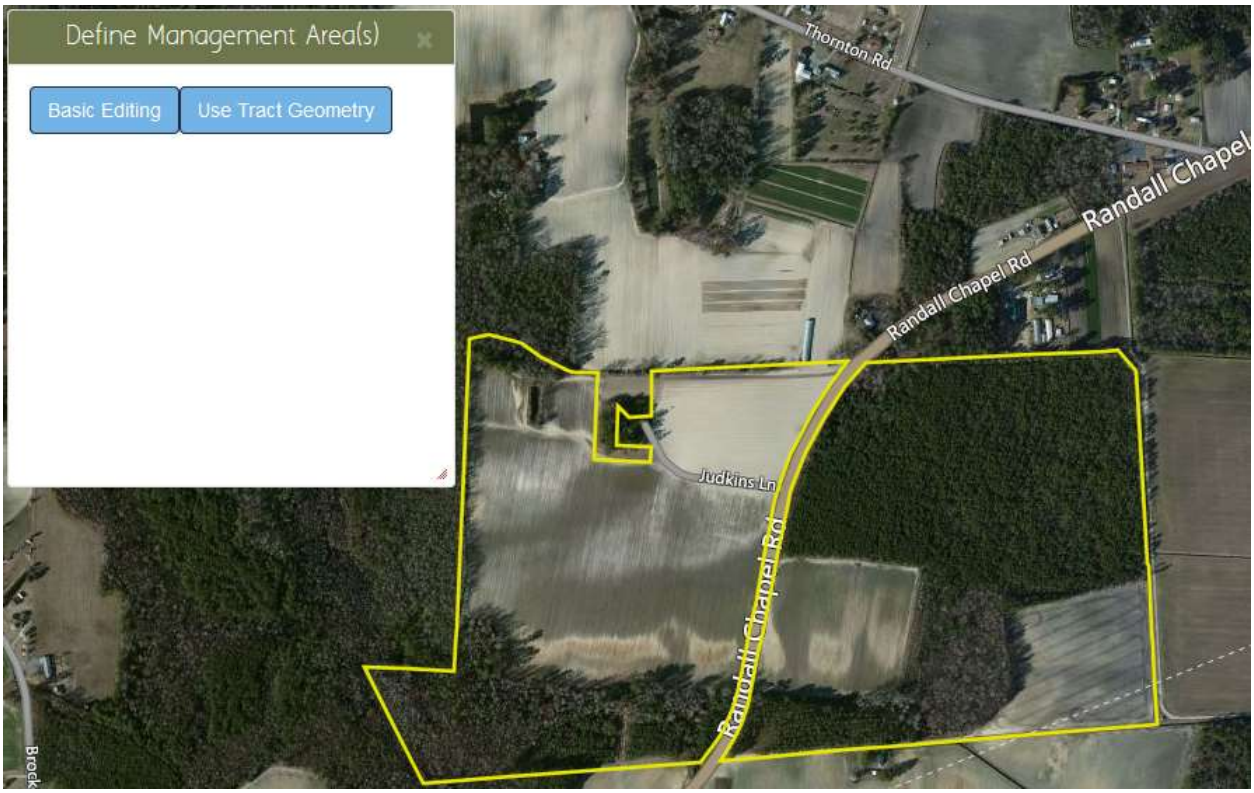
CREATING AND EDITING MANAGEMENT AREAS

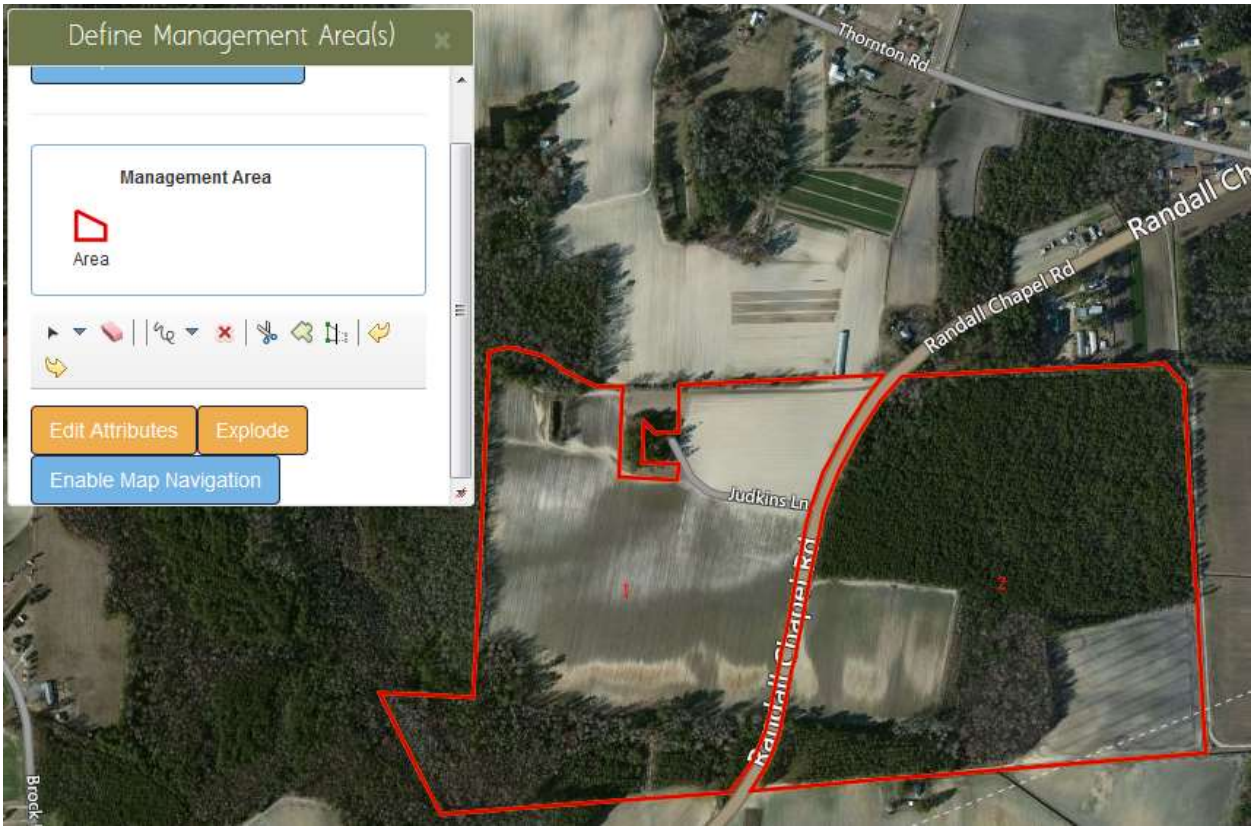
The FPPT allows users to create and edit management areas for their tract. The user also has the ability to create just one management area or split the tract up into several management areas.

Creating Single Management Areas

Create Single Management Area—Tract does not need to be subdivided

Use Tract Geometry Tool

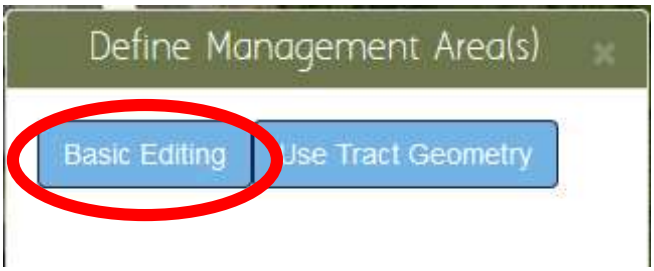

Define Management Area(s)
Basic Editing
Use Tract Geometry
Thornton Rd
Randall Chapel
Randall Chapel Rd
Judkins Ln
Randall Chapel Rd

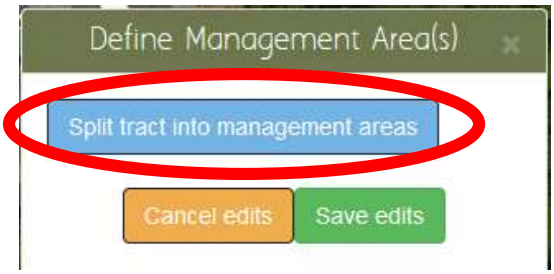

Define Management Area(s)
Management Area
Area
Edit Attributes
Explode
Enable Map Navigation
Thornton Rd
Randall Chapel Rd
Judkins Ln

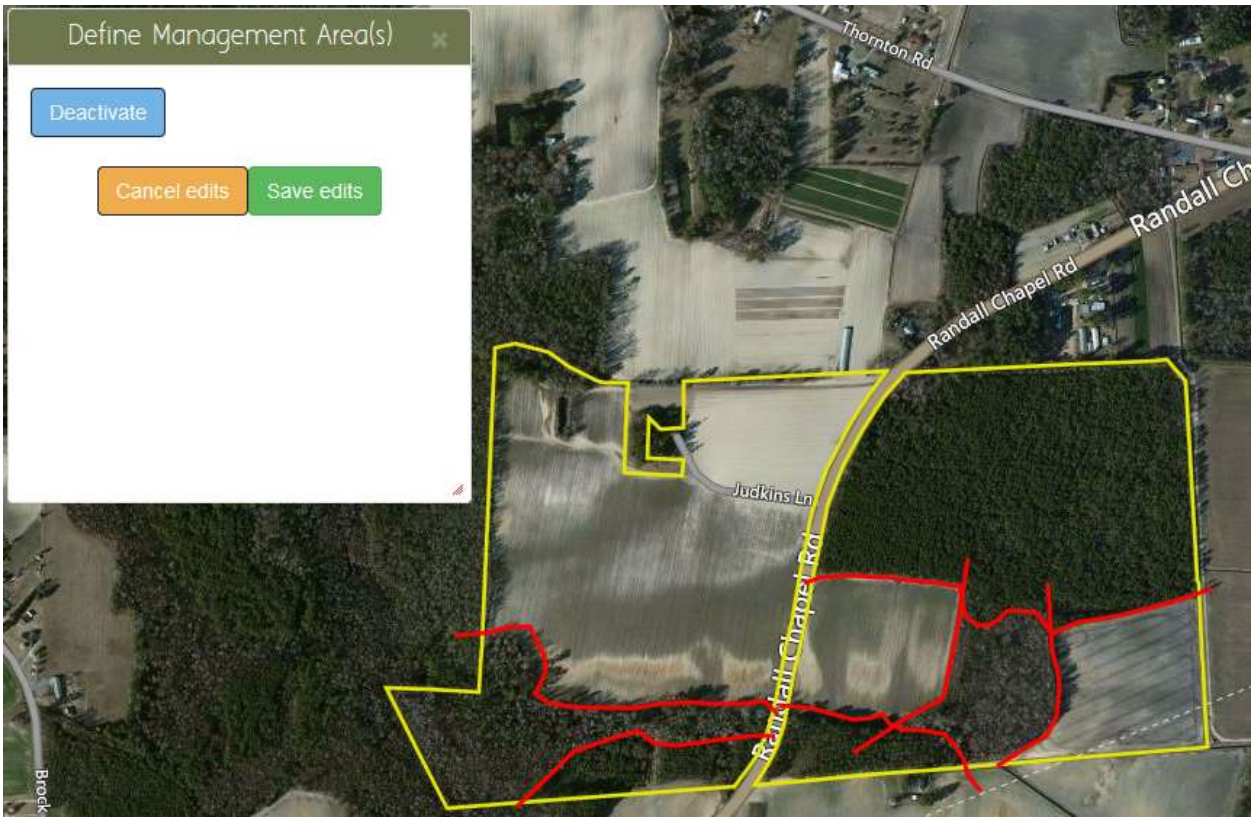
Splitting tract(s) to Create Management Areas

Split a tract to create multiple management areas

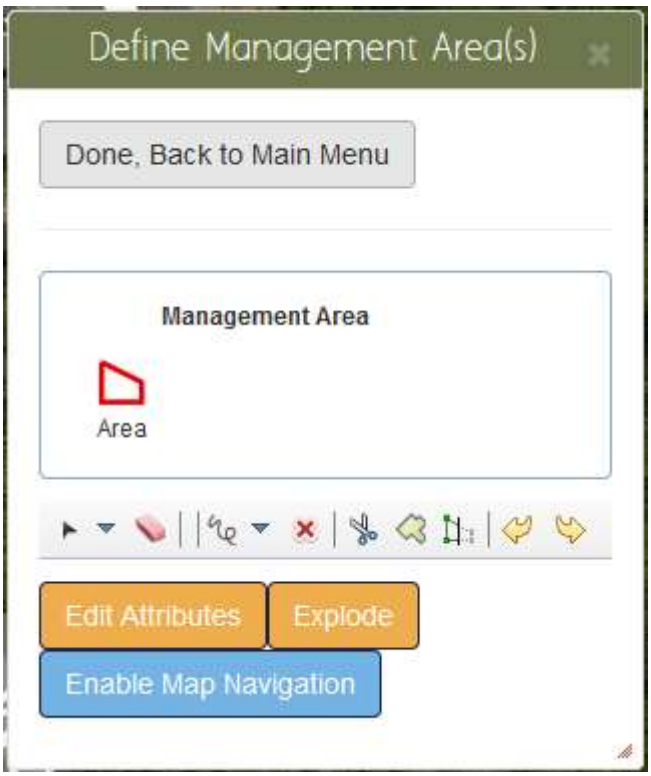
Basic Editing Tool







Editing Management Areas

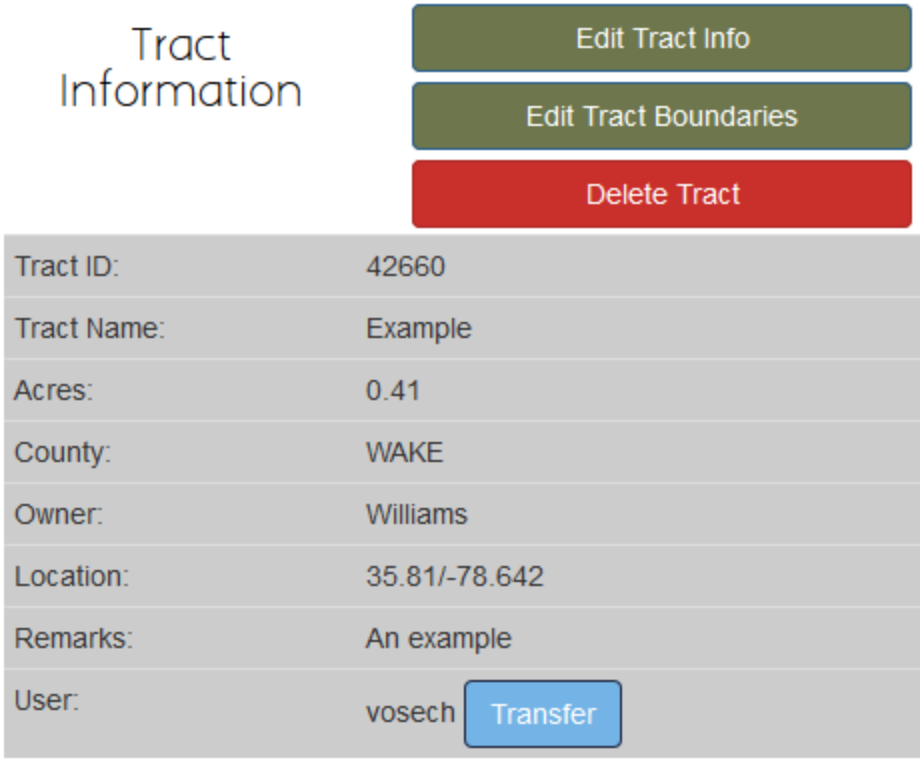


Editing Management Area Attributes

Tract Home

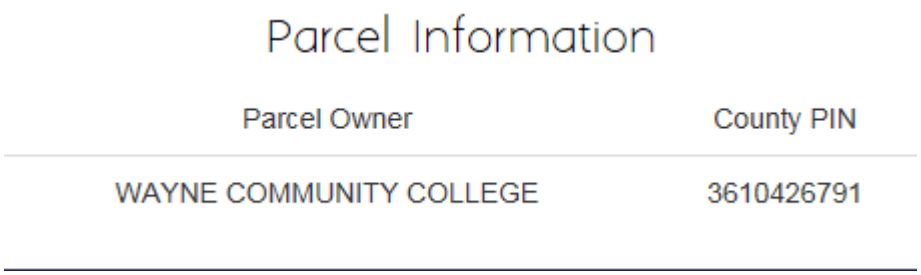
Management Tract Information

Management Tract Information allows the user to *Edit Tract Info*, *Edit Tract Boundaries*, *Delete Tract*, and *Transfer* editing rights to another user. Additional tract information is provided about the tract for the user (Tract ID, Tract Name, Acres, County, Owner, Location, Remarks)



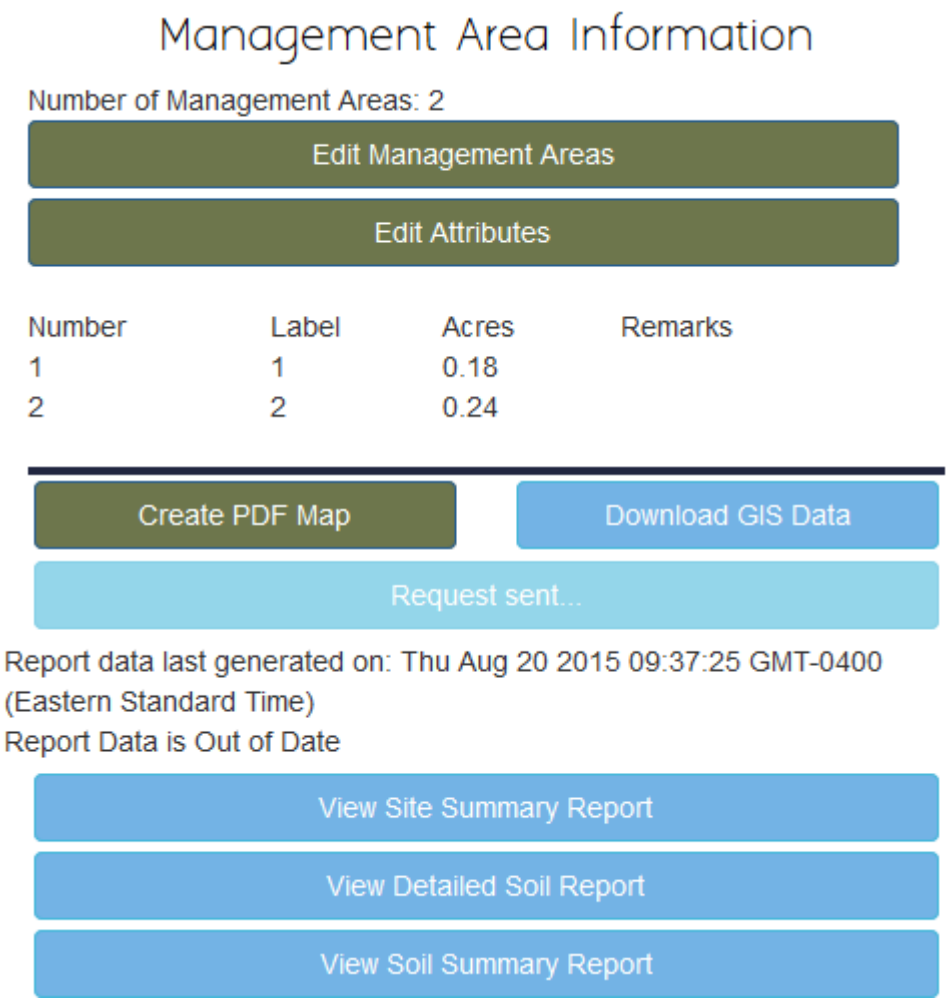
Parcel Information

Parcel Information (Parcel Owner, County Pin) is provided for the tract.



Management Area Information

Management Area Information provides the user the ability to *Edit Management Areas*, *Edit Attributes*, *Create PDF Map*, and *Download GIS Data*. Management Area Information also provides the user with information such as Number of Management Areas, Acres, Remarks. The user also has the ability to run & view reports from this section. *View Site Summary Report*, *View Detailed Soil Report*, *View Soil Summary Report* are all available to the user.

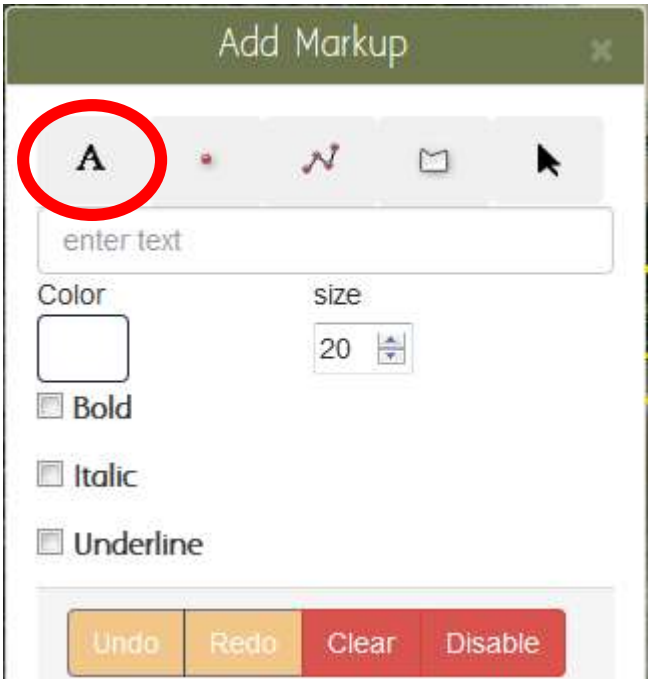


CUSTOMIZING MAPS

Add Temporary Markups to Map

Before printing your map you have the ability to add temporary markup items to the map document. These markups DO NOT get saved to the database and will not be available in your next session. The Add Markup toolbox allows you to add text elements, point elements, line elements, and polygon elements to your map.

Text: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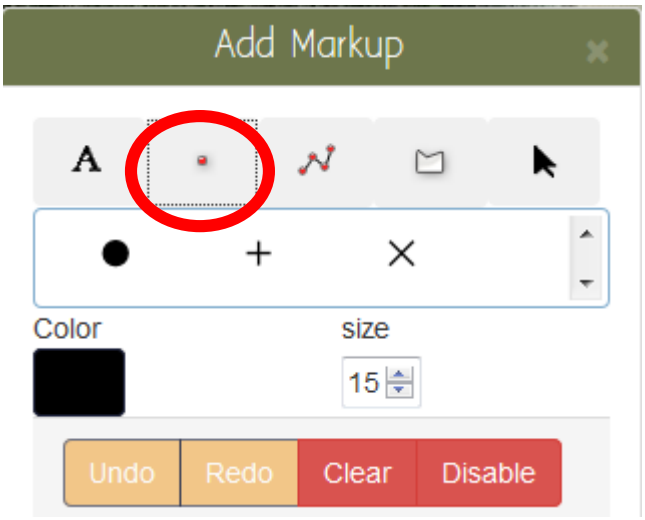
Point: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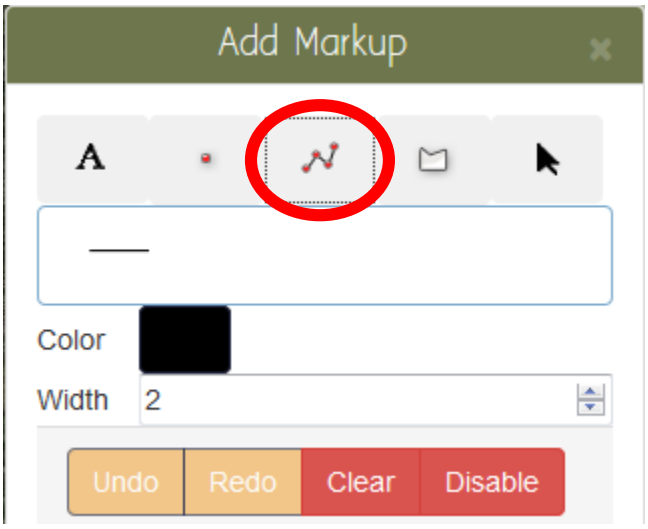
Line: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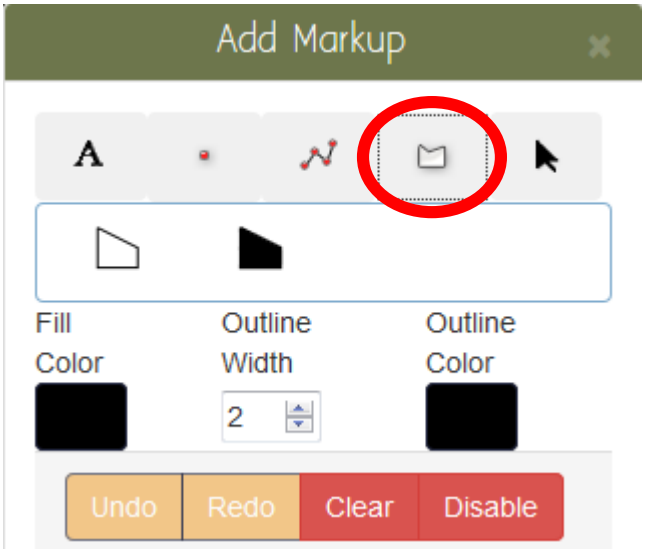
Polygon: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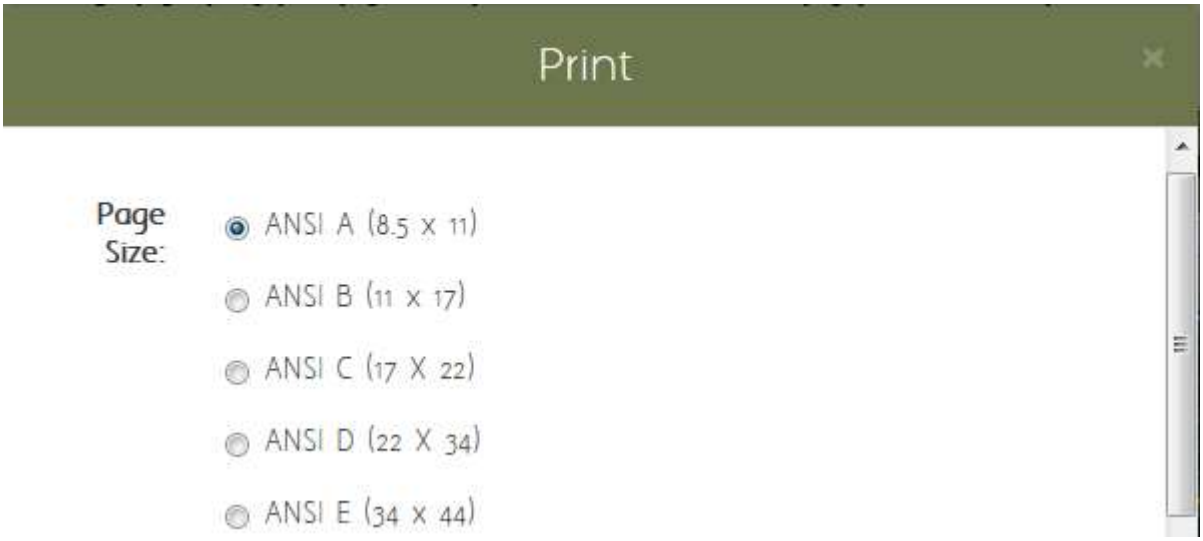
Printing Your Map

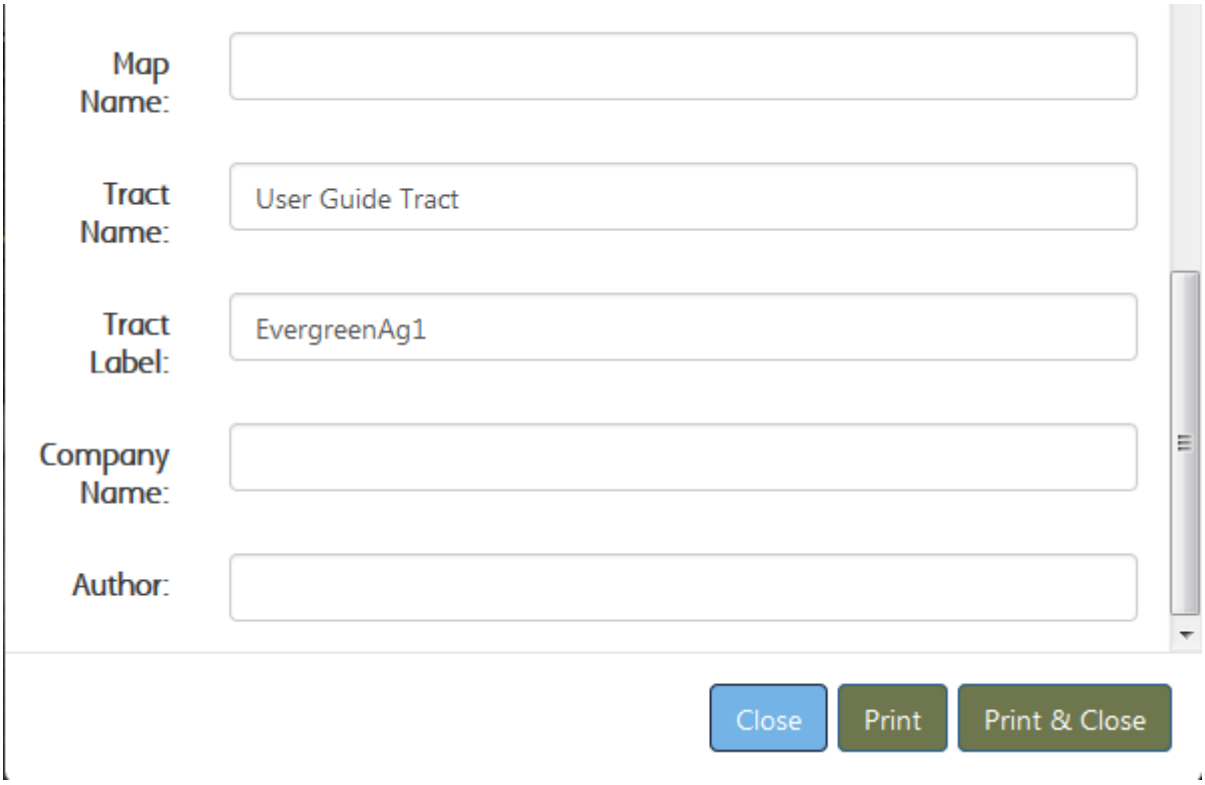


Ratio	Ground Distance *Feet*	Ground Distance *Chains*
1:1200	100 ft	1.51 ch
1:2400	200 ft	3.03 ch

1:3600	300 ft	4.54 ch
1:4800	400 ft	6.06 ch
1:6000	500 ft	7.57 ch
1:12000	1000 ft	15.15 ch
1:24000	2000 ft	30.3 ch
1:60000	5000 ft	75.75 ch

Ratio	**Ground Distance** *Chains*	**Ground Distance** *Feet*
1:792	1 ch	66 ft
1:1584	2 ch	132 ft
1:2376	3 ch	198 ft
1:3168	4 ch	264 ft
1:3960	5 ch	330 ft
1:7920	10 ch	660 ft
1:15840	20 ch	1320 ft
1:23760	30 ch	1960 ft

Map Information:



Creating PDF Map

Create PDF Map allows the user to download their map in a PDF to save or print. The user also has the ability to add temporary markups to the map.

Map Data

Map Data is provided to the user. Information about the map provided includes:

Date & Time map is generated

Tract Map—Parcel selected, Management areas selected

Legend—Boundaries, Hydrography, Infrastructure, Harvest Tools, Runoff Control, Sediment Capture, Scale

Latitude, Longitude

REPORTS

Running Reports

Where Does This Information Come From?

The FPPT provides a one-stop shop for publicly available geospatial data that have been developed and are maintained by other public agencies or private entities. Understanding what those data sets are can help you understand why they may be useful to the preharvest planning process and what the limitations of the data sets may be.

SITE SUMMARY REPORT

General Tract Information

General Tract Information			
Tract ID:	1460	Date Retrieved:	11-13-2015
Tract Name:	WCC Test Tract	Tract Acres:	127.35
Tract Label:	WCC Test Tract	River Basin:	Neuse River Basin
County:	Wayne	Physiographic Region:	Inner Coastal Plain
NCFS Contact Information:	County Ranger: 919-731-2010 Rocky Mount District: 252-442-1626 Ask for Water Quality Forester	Geologic Province:	Coastal Plain
		Latitude:	35° 24.12 '
		Longitude:	-77° 56.64 '

Information about tract provided: Tract ID, Tract Name Tract Label, County, NCFS Contact Information, Date Retrieved, Tract Acres, River Basin, Physiographic Region, Geologic Province, Latitude, Longitude

River Basin denotes which of the 17 major watersheds the tract is located in. Harvesting activities in some river basins are subject to additional rules, such as riparian buffers. More information on NC's river basins is available at http://www.eenorthcarolina.org/riverbasins.html.

Environmental Regulation Considerations

Environmental Regulation Considerations	
Forest Practices Guidelines (always apply):	http://ncforestservice.gov/publications/Forestry%20Leaflets/WQ01.pdf
NC G.S. 77-13. Obstructing streams is a misdemeanor.	http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_77/GS_77-13.pdf
NC G.S. 77-14. Obstructions in streams and drainage ditches.	http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_77/GS_77-14.pdf
NCDWR Riparian Buffer Rules apply?	Yes Buffer Rule: Neuse River Basin
Riparian Buffer Rule Forestry Leaflet:	http://www.ncforestservice.gov/publications/Forestry%20Leaflets/WQ11.pdf
Riparian Buffer Rule Administrative Code:	http://portal.ncdenr.org/web/wq/swp/ws/401/riparianbuffers/rules

Links to Environmental Regulation Considerations for your tract.

Forest Practices Guidelines (FPGs) are statewide, mandatory rule requirements that were developed to assure that forestry activities are conducted in a manner that protects our water quality. These regulations are administered as part of the North Carolina Sedimentation Pollution Control Act (SPCA). All standards of the FPGs must be in compliance for your forestry-related, land-disturbing activity if it is to remain exempt from the full requirements of the SPCA.

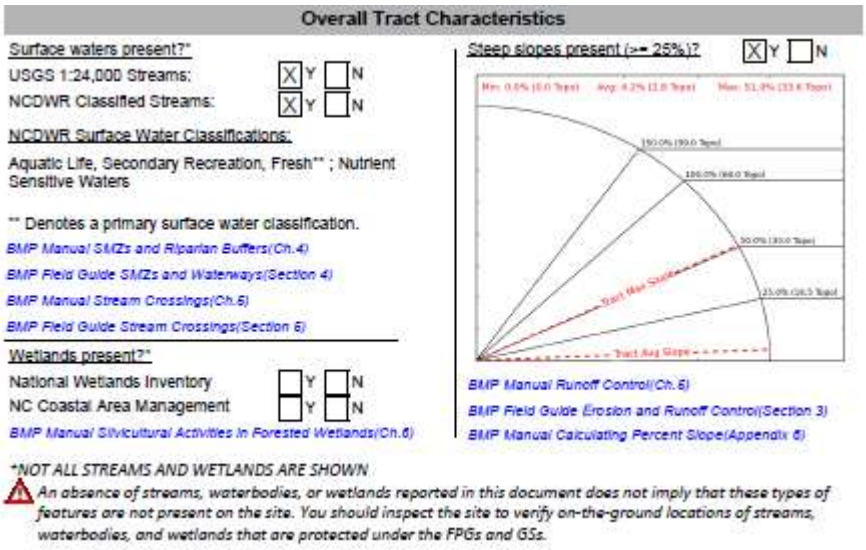
NC G.S. 77-13 If any person, firm, or corporation shall fell any tree, or put any obstruction, except for the purposes of utilizing water as a motive power, in any branch, creek, stream, or other natural passage for water, whereby the natural flow of water through such passage is lessened or retarded, or whereby the navigation of such stream may be impeded, delayed, or prevented, the person, firm, or corporation so offending shall be guilty of a Class 2 misdemeanor. In addition to any fine or imprisonment imposed, the court may, in its discretion, order the person, firm, or corporation so offending to remove the obstruction and restore the affected waterway to an undisturbed condition, or allow authorized

employees of the enforcing agency to enter upon the property and accomplish the removal of the obstruction and the restoration of the waterway to an undisturbed condition, in which case the costs of the removal and restoration shall be paid to the enforcing agency by the offending party. Nothing in this section shall prevent the erection of fish dams or hedges across any stream which do not extend across more than two thirds of its width at the point of obstruction. If the fish dams or hedges extend more than two thirds of the width of any stream, the said penalties shall attach. This section may be enforced by marine fisheries inspectors and wildlife protectors. Within the bounds of any county or municipality, this section may also be enforced by any law enforcement officer having territorial jurisdiction, or by the county engineer. This section may also be enforced by specially commissioned forest law-enforcement officers of the Department of Agriculture and Consumer Services for offenses occurring in woodlands. For purposes of this section, the term "woodlands" means all forested areas, including swamp and timber lands, cutover lands, and second-growth stands in previously cultivated sites. (1872-3, c. 107, ss. 1, 2; Code, s. 1123; Rev., s. 3559; C.S., s. 7377; 1975, c. 509; 1977, c. 771, s. 4; 1979, c. 493, s. 1; 1987, c. 641, s. 12; 1989, c. 727, s. 218(19); 1991, c. 152, s. 1; 1993, c. 539, s. 581; 1994, Ex. Sess., c. 24, s. 14(c); 1997-443, s. 11A.119(a); 2013-155, s. 3.)

NC G.S. 77-14 If any person, firm or corporation shall fell any tree or put any slabs, stumpage, sawdust, shavings, lime, refuse or any other substances in any creek, stream, river or natural or artificial drainage ravine or ditch, or in any other outlet which serves to remove water from any land whatsoever whereby the drainage of said land is impeded, delayed or prevented, the person, firm or corporation so offending shall be guilty of a Class 2 misdemeanor: Provided, however, nothing herein shall prevent the construction of any dam or weir not otherwise prohibited by any valid local or State statute or regulation. In addition to any fine or imprisonment imposed, the court may, in its discretion, order the person, firm, or corporation so offending to remove the obstruction and restore the affected waterway to an undisturbed condition, or allow authorized employees of the enforcing agency to enter upon the property and accomplish the removal of the obstruction and the restoration of the waterway to an undisturbed condition, in which case the costs of the removal and restoration shall be paid to the enforcing agency by the offending party. This section may be enforced by marine fisheries inspectors and wildlife protectors. Within the boundaries of any county or municipality this section may also be enforced by any law enforcement officer having territorial jurisdiction, or by the county engineer. This section may also be enforced by specially commissioned forest law-enforcement officers of the Department of Agriculture and Consumer Services for offenses occurring in woodlands. For purposes of this section, the term "woodlands" means all forested areas, including swamp and timber lands, cutover lands and second-growth stands on previously cultivated sites. (1953, c. 1242; 1957, c. 524; 1959, cc. 160, 1125; 1961, c. 507; 1969, c. 790, s. 1; 1975, c. 509; 1977, c. 771, s. 4; 1979, c. 493, s. 1; 1987, c. 641, s. 13; 1989, c. 727, s. 218(20); 1991, c. 152, s. 2; 1993, c. 539, s. 582; 1994, Ex. Sess., c. 24, s. 14(c); 1997-443, s. 11A.119(a); 2013-155, s. 4.)

Report will provide if NCDWR Riparian Buffer Rules apply and which Buffer Rule applies to tract. Link to NCDWR Riparian Buffer Rules http://portal.ncdenr.org/web/wq/swp/ws/401/riparianbuffers/rules

Overall Tract Characteristics



Slope

The ***average slope*** and ***maximum slope*** for your tract are depicted in a diagram. Greater topographic slopes on a site often create more challenging situations in terms of increased runoff and erosion and appropriate placement of decks, skid trails, and roads. The presence of very steep slopes (≥ 25%) suggests that a closer look at site topography may be needed to plan the site layout in such a way as to minimize runoff and erosion.

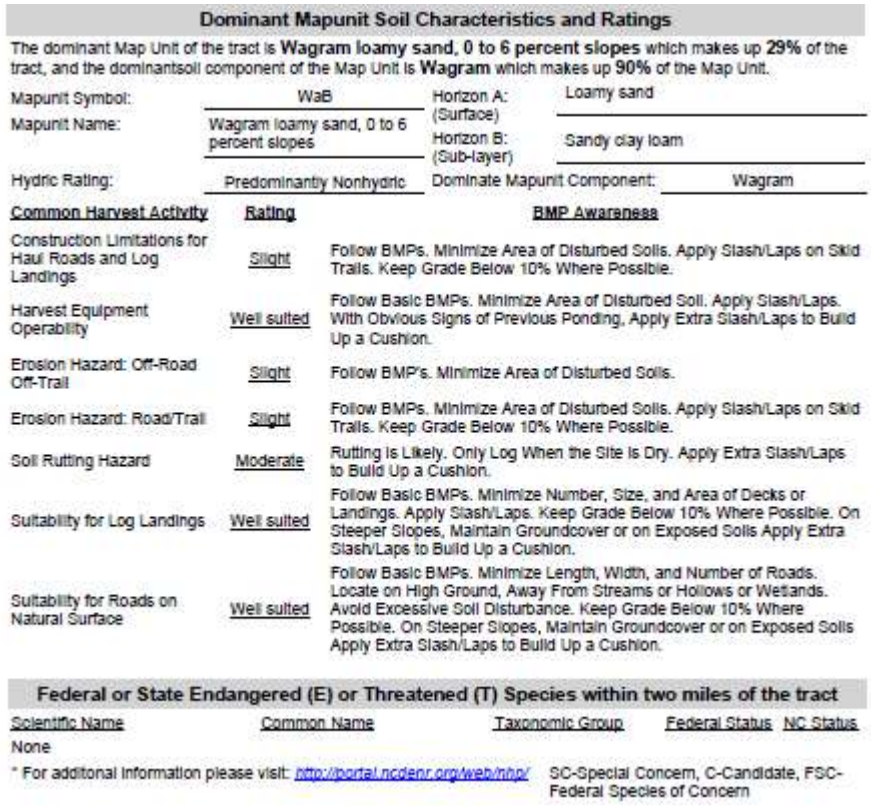
Hydrography

Surface waters include creeks, streams, rivers, ponds, lakes, estuaries, and sounds. The FPPT compares the tract boundary to two different surface water maps: U.S. Geological Survey (USGS) data (the National Hydrography Dataset, or NHD) or the stream data maintained by NC DWR. If NC DWR streams are present, the corresponding stream classification(s) is (are) also provided.

The presence of ***wetlands*** is determined using two different data sets: the US Fish and Wildlife Service's National Wetland Inventory (NWI) (available statewide) and the NC Division of Coastal Management's (DCM) Wetland Type Maps (available for 37 eastern counties). Not all of the features included in these data sets (particularly the NWI) are necessarily considered to be *jurisdictional wetlands*, or subject to regulation by the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and/or NC DWR. Jurisdictional status can only be confirmed by onsite verification by someone trained in wetland delineation. The presence of jurisdictional wetlands requires the implementation of *mandatory* BMPs that have been developed by the USACE and USEPA in order to retain the silviculture exemption status for wetland impact ("dredge and fill") permitting.

IMPORTANT NOTE: An absence of streams, waterbodies, or wetlands in your FPPT report does not imply that these types of features are not present on the site. You should inspect the site to verify on-the-ground locations of streams, waterbodies, and wetlands that are protected under the FPGs and GSs.

Dominant Mapunit Soil Characteristics and Ratings



Dominant Mapunit Soil Characteristics and Ratings

The dominant Map Unit of the tract is **Wagram loamy sand, 0 to 6 percent slopes** which makes up **29%** of the tract, and the dominantsoil component of the Map Unit is **Wagram** which makes up **90%** of the Map Unit.

Mapunit Symbol:	WaB	Horizon A: (Surface)	Loamy sand
Mapunit Name:	Wagram loamy sand, 0 to 6 percent slopes	Horizon B: (Sub-layer)	Sandy clay loam
Hydric Rating:	Predominantly Nonhydric	Dominate Mapunit Component:	Wagram

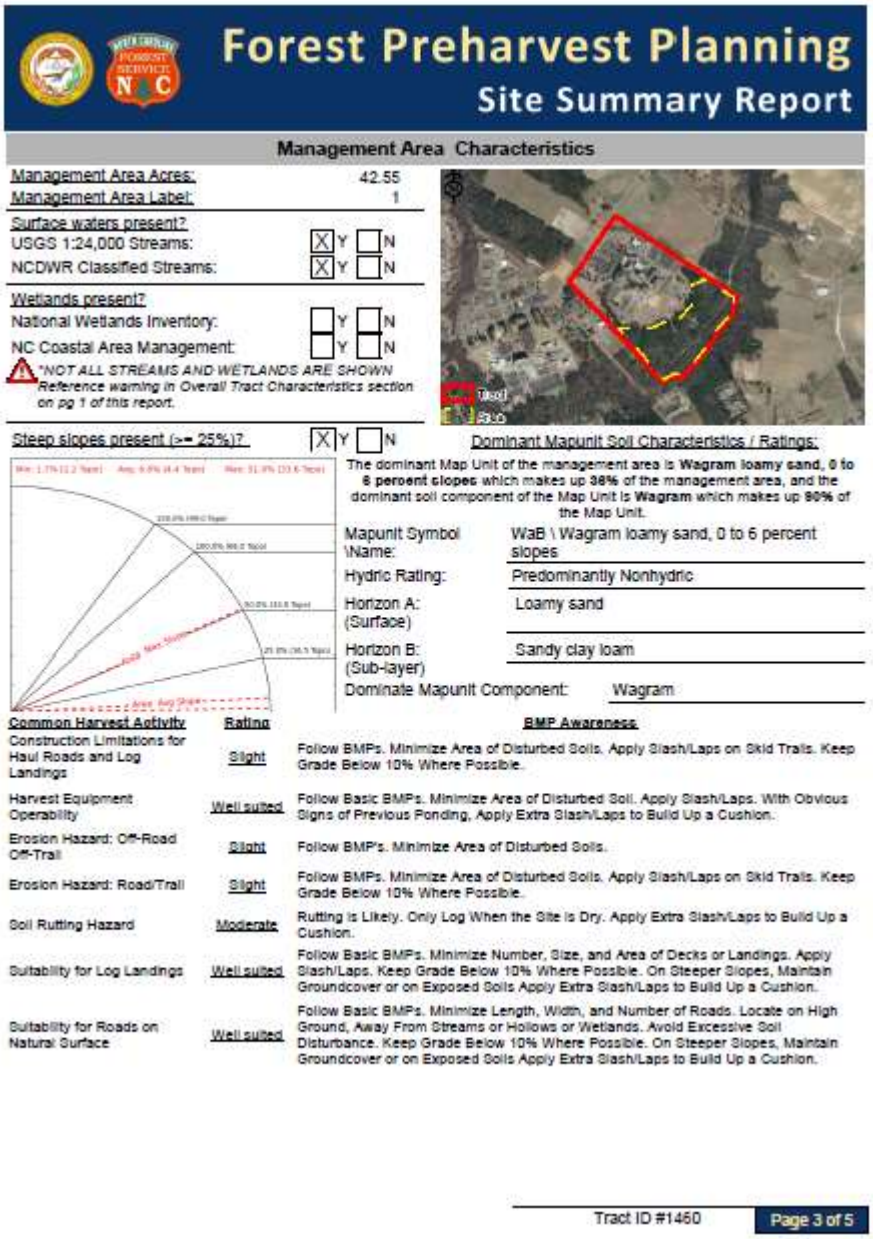
Common Harvest Activity	Rating	BMP Awareness
Construction Limitations for Haul Roads and Log Landings	Slight	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Harvest Equipment Operability	Well suited	Follow Basic BMPs. Minimize Area of Disturbed Soil. Apply Slash/Laps. With Obvious Signs of Previous Ponding, Apply Extra Slash/Laps to Build Up a Cushion.
Erosion Hazard: Off-Road Off-Trail	Slight	Follow BMP's. Minimize Area of Disturbed Soils.
Erosion Hazard: Road/Trail	Slight	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Soil Rutting Hazard	Moderate	Rutting is Likely. Only Log When the Site is Dry. Apply Extra Slash/Laps to Build Up a Cushion.
Suitability for Log Landings	Well suited	Follow Basic BMPs. Minimize Number, Size, and Area of Decks or Landings. Apply Slash/Laps. Keep Grade Below 10% Where Possible. On Steeper Slopes, Maintain Groundcover or on Exposed Soils Apply Extra Slash/Laps to Build Up a Cushion.
Suitability for Roads on Natural Surface	Well suited	Follow Basic BMPs. Minimize Length, Width, and Number of Roads. Locate on High Ground, Away From Streams or Hollows or Wetlands. Avoid Excessive Soil Disturbance. Keep Grade Below 10% Where Possible. On Steeper Slopes, Maintain Groundcover or on Exposed Soils Apply Extra Slash/Laps to Build Up a Cushion.

Federal or State Endangered (E) or Threatened (T) Species within two miles of the tract

Scientific Name	Common Name	Taxonomic Group	Federal Status	NC Status
None				

* For additonal information please visit: http://portal.ncdenr.org/web/nhp/ SC-Special Concern, C-Candidate, FSC-Federal Species of Concern

Management Area Characteristics



Forest Preharvest Planning
Site Summary Report

Management Area Characteristics

Management Area Acres:	42.55
Management Area Label:	1

Surface waters present?
USGS 1:24,000 Streams: [X] Y [ ] N
NCDWR Classified Streams: [X] Y [ ] N

Wetlands present?
National Wetlands Inventory: [ ] Y [ ] N
NC Coastal Area Management: [ ] Y [ ] N

*NOT ALL STREAMS AND WETLANDS ARE SHOWN
Reference warning in Overall Tract Characteristics section on pg 1 of this report.

Steep slopes present (>= 25%)? [X] Y [ ] N

Dominant Mapunit Soil Characteristics / Ratings:

The dominant Map Unit of the management area is **Wagram loamy sand, 0 to 6 percent slopes** which makes up **38%** of the management area, and the dominant soil component of the Map Unit is **Wagram** which makes up **80%** of the Map Unit.

Mapunit Symbol \Name:	WaB \ Wagram loamy sand, 0 to 6 percent slopes
Hydric Rating:	Predominantly Nonhydric
Horizon A: (Surface)	Loamy sand
Horizon B: (Sub-layer)	Sandy clay loam
Dominate Mapunit Component:	Wagram

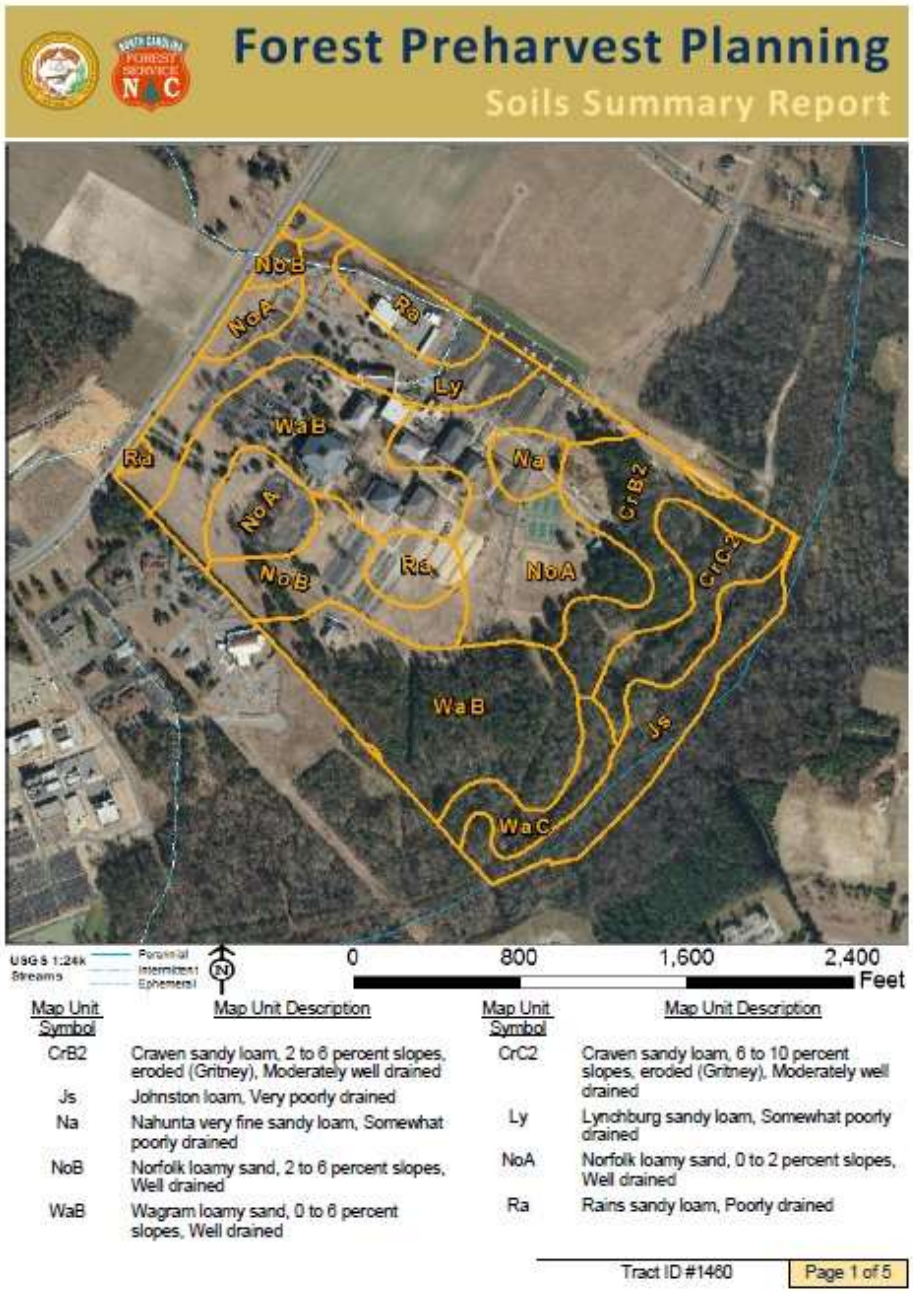
Common Harvest Activity	Rating	BMP Awareness
Construction Limitations for Haul Roads and Log Landings	Slight	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Harvest Equipment Operability	Well suited	Follow Basic BMPs. Minimize Area of Disturbed Soil. Apply Slash/Laps. With Obvious Signs of Previous Ponding, Apply Extra Slash/Laps to Build Up a Cushion.
Erosion Hazard: Off-Road Off-Trail	Slight	Follow BMP's. Minimize Area of Disturbed Soils.
Erosion Hazard: Road/Trail	Slight	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Soil Rutting Hazard	Moderate	Rutting is Likely. Only Log When the Site is Dry. Apply Extra Slash/Laps to Build Up a Cushion.
Suitability for Log Landings	Well suited	Follow Basic BMPs. Minimize Number, Size, and Area of Decks or Landings. Apply Slash/Laps. Keep Grade Below 10% Where Possible. On Steeper Slopes, Maintain Groundcover or on Exposed Soils Apply Extra Slash/Laps to Build Up a Cushion.
Suitability for Roads on Natural Surface	Well suited	Follow Basic BMPs. Minimize Length, Width, and Number of Roads. Locate on High Ground, Away From Streams or Hollows or Wetlands. Avoid Excessive Soil Disturbance. Keep Grade Below 10% Where Possible. On Steeper Slopes, Maintain Groundcover or on Exposed Soils Apply Extra Slash/Laps to Build Up a Cushion.

Tract ID #1460 Page 3 of 5

Provides a breakdown of multiple characteristics of a management area on a site that is specific to that management area versus the whole site.

SOIL SUMMARY REPORT

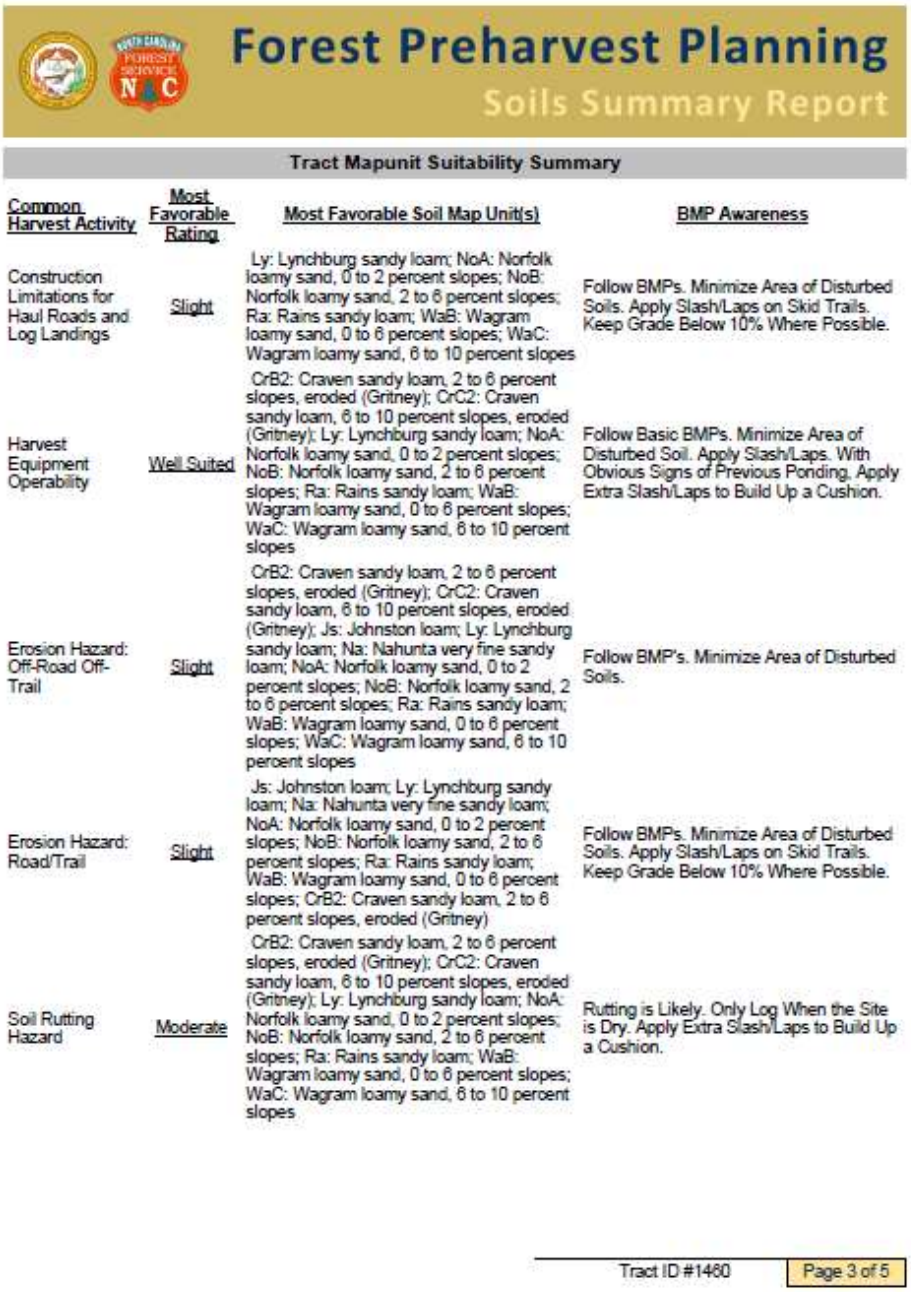
Preview Map



Map Unit Symbol	Map Unit Description	Map Unit Symbol	Map Unit Description
CrB2	Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney), Moderately well drained	CrC2	Craven sandy loam, 6 to 10 percent slopes, eroded (Gritney), Moderately well drained
Js	Johnston loam, Very poorly drained	Ly	Lynchburg sandy loam, Somewhat poorly drained
Na	Nahunta very fine sandy loam, Somewhat poorly drained	NoA	Norfolk loamy sand, 0 to 2 percent slopes, Well drained
NoB	Norfolk loamy sand, 2 to 6 percent slopes, Well drained	Ra	Rains sandy loam, Poorly drained
WaB	Wagram loamy sand, 0 to 6 percent slopes, Well drained		

Tract ID #1460 Page 1 of 5

Tract Mapunit Suitability Summary



Forest Preharvest Planning
Soils Summary Report

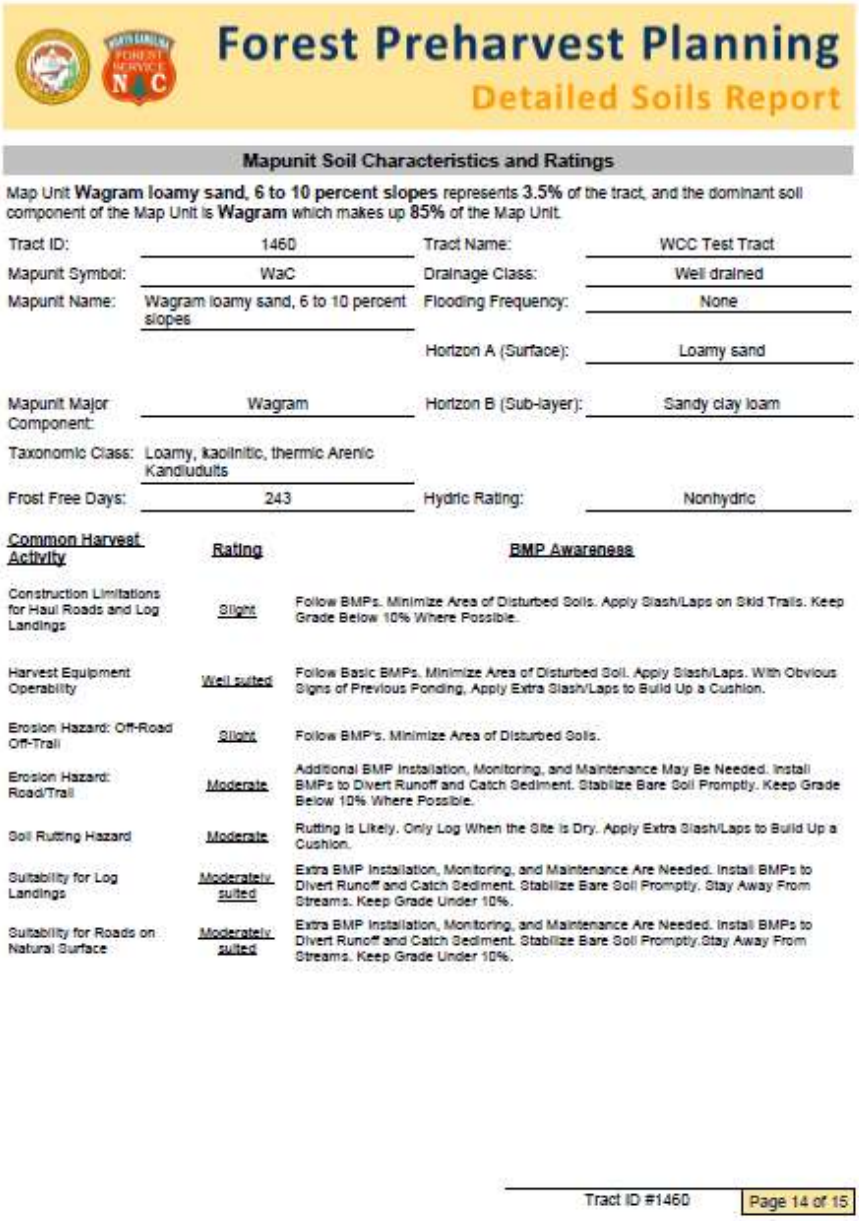
Tract Mapunit Suitability Summary

Common Harvest Activity	Most Favorable Rating	Most Favorable Soil Map Unit(s)	BMP Awareness
Construction Limitations for Haul Roads and Log Landings	Slight	Ly: Lynchburg sandy loam; NoA: Norfolk loamy sand, 0 to 2 percent slopes; NoB: Norfolk loamy sand, 2 to 6 percent slopes; Ra: Rains sandy loam; WaB: Wagram loamy sand, 0 to 6 percent slopes; WaC: Wagram loamy sand, 6 to 10 percent slopes	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Harvest Equipment Operability	Well Suited	CrB2: Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney); CrC2: Craven sandy loam, 6 to 10 percent slopes, eroded (Gritney); Ly: Lynchburg sandy loam; NoA: Norfolk loamy sand, 0 to 2 percent slopes; NoB: Norfolk loamy sand, 2 to 6 percent slopes; Ra: Rains sandy loam; WaB: Wagram loamy sand, 0 to 6 percent slopes; WaC: Wagram loamy sand, 6 to 10 percent slopes	Follow Basic BMPs. Minimize Area of Disturbed Soil. Apply Slash/Laps. With Obvious Signs of Previous Ponding, Apply Extra Slash/Laps to Build Up a Cushion.
Erosion Hazard: Off-Road Off-Trail	Slight	CrB2: Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney); CrC2: Craven sandy loam, 6 to 10 percent slopes, eroded (Gritney); Js: Johnston loam; Ly: Lynchburg sandy loam; Na: Nahunta very fine sandy loam; NoA: Norfolk loamy sand, 0 to 2 percent slopes; NoB: Norfolk loamy sand, 2 to 6 percent slopes; Ra: Rains sandy loam; WaB: Wagram loamy sand, 0 to 6 percent slopes; WaC: Wagram loamy sand, 6 to 10 percent slopes	Follow BMP's. Minimize Area of Disturbed Soils.
Erosion Hazard: Road/Trail	Slight	Js: Johnston loam; Ly: Lynchburg sandy loam; Na: Nahunta very fine sandy loam; NoA: Norfolk loamy sand, 0 to 2 percent slopes; NoB: Norfolk loamy sand, 2 to 6 percent slopes; Ra: Rains sandy loam; WaB: Wagram loamy sand, 0 to 6 percent slopes; CrB2: Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney)	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Soil Rutting Hazard	Moderate	CrB2: Craven sandy loam, 2 to 6 percent slopes, eroded (Gritney); CrC2: Craven sandy loam, 6 to 10 percent slopes, eroded (Gritney); Ly: Lynchburg sandy loam; NoA: Norfolk loamy sand, 0 to 2 percent slopes; NoB: Norfolk loamy sand, 2 to 6 percent slopes; Ra: Rains sandy loam; WaB: Wagram loamy sand, 0 to 6 percent slopes; WaC: Wagram loamy sand, 6 to 10 percent slopes	Rutting is Likely. Only Log When the Site is Dry. Apply Extra Slash/Laps to Build Up a Cushion.

Tract ID #1460 Page 3 of 5

DETAILED SOILS REPORT

Mapunit Soil Characteristics and Ratings



Forest Preharvest Planning
Detailed Soils Report

Mapunit Soil Characteristics and Ratings

Map Unit **Wagram loamy sand, 6 to 10 percent slopes** represents **3.5%** of the tract, and the dominant soil component of the Map Unit is **Wagram** which makes up **85%** of the Map Unit.

Tract ID:	1460	Tract Name:	WCC Test Tract
Mapunit Symbol:	WaC	Drainage Class:	Well drained
Mapunit Name:	Wagram loamy sand, 6 to 10 percent slopes	Flooding Frequency:	None
		Horizon A (Surface):	Loamy sand
Mapunit Major Component:	Wagram	Horizon B (Sub-layer):	Sandy clay loam
Taxonomic Class:	Loamy, kaolinitic, thermic Arenic Kanhapludults		
Frost Free Days:	243	Hydric Rating:	Nonhydric

Common Harvest Activity	Rating	BMP Awareness
Construction Limitations for Haul Roads and Log Landings	Slight	Follow BMPs. Minimize Area of Disturbed Soils. Apply Slash/Laps on Skid Trails. Keep Grade Below 10% Where Possible.
Harvest Equipment Operability	Well suited	Follow Basic BMPs. Minimize Area of Disturbed Soil. Apply Slash/Laps. With Obvious Signs of Previous Ponding, Apply Extra Slash/Laps to Build Up a Cushion.
Erosion Hazard: Off-Road Off-Trail	Slight	Follow BMP's. Minimize Area of Disturbed Soils.
Erosion Hazard: Road/Trail	Moderate	Additional BMP Installation, Monitoring, and Maintenance May Be Needed. Install BMPs to Divert Runoff and Catch Sediment. Stabilize Bare Soil Promptly. Keep Grade Below 10% Where Possible.
Soil Rutting Hazard	Moderate	Rutting is Likely. Only Log When the Site is Dry. Apply Extra Slash/Laps to Build Up a Cushion.
Suitability for Log Landings	Moderately suited	Extra BMP Installation, Monitoring, and Maintenance Are Needed. Install BMPs to Divert Runoff and Catch Sediment. Stabilize Bare Soil Promptly. Stay Away From Streams. Keep Grade Under 10%.
Suitability for Roads on Natural Surface	Moderately suited	Extra BMP Installation, Monitoring, and Maintenance Are Needed. Install BMPs to Divert Runoff and Catch Sediment. Stabilize Bare Soil Promptly.Stay Away From Streams. Keep Grade Under 10%.

Tract ID #1460 Page 14 of 15

Environmental Regulation Considerations

Forest Practices Guidelines (FPGs) and ***General Statutes*** (GS) apply to all forestry operations in the state. The report provides links to the appropriate Administrative Code or Statute.

The location of the tract is used to determine if it is located in an area of the state (river basin or watershed) where ***Riparian Buffer Rules*** that are administered by the NC Department of the Environment and Natural Resources (DENR), Division of Water Resources (DWR) apply. In these areas, there are more stringent rules for removal of trees and other vegetation along the banks of streams,

rivers, and other waterbodies. If there are buffer regulations administered by NC DWR that are applicable to your tract, information on which rule applies and a link to the rule and a NCFS fact sheet will appear on your report.

FREQUENTLY ASKED QUESTIONS

User and Group Accounts

How do I navigate the application?

You can navigate the application using the top toolbar (green) or the breadcrumb trail (blue, yellow, red). The breadcrumb trail is the main source for navigation within the application. As you progress through the various stages, you will see the trail increase. Links, such as: Home, Tract Home, Edit Tract, Edit Management Areas, and Customize Map are clickable links that will take you to the page where that specific information resides.

What is the purpose of this application?

The FPPT is intended to be a free, accessible tool to assist forestry professionals, landowners, and the general public with planning timber harvests and other forest management activities. Determination of the presence, absence, or location of features that may be subject to regulation by local, state, and/or federal agencies must be based on in-field conditions in accordance with the rules, regulations, and guidance of the appropriate regulatory agencies.

How do I create an account as an NCID user?

1. On the homepage, CLICK **Register Account**
2. Select your **Group** from the drop down menus
3. Enter your **NCID** as your username
    a. CLICK the box next to "This is my NCID account [Create new NCID Account (optional)]
4. Enter your **Name, Job Title,** and **Registration Code** (optional)
5. CLICK **Submit**

An email will be sent to FPPT Support, who will then review your information and grant your account access to the application. When you log in, your **username** will be your **NCID** and your **password** will be the one you enter to log in to all **NCID** related accounts.

How do I create an account as a non-NCID user?

1. On the homepage, CLICK **Register Account**
2. Select your **Group** from the drop down menus
3. Enter your **Email** as your username
    a. **DO NOT** CLICK the box next to "This is my NCID account [Create new NCID Account (optional)] because you are not using an NCID account
4. Enter your desired **Password**
5. Reenter the same **Password**
6. Enter your **Name, Job Title,** and **Registration Code** (optional)

7. CLICK **Submit**

An email will be sent to FPPT Support, who will then review your information and grant your account access to the application. When you return to log in, enter your **username** (email address) and **password** (as entered when you signed up).

What if my group is not listed when creating my account?

1. On the homepage, CLICK **Register Account**
2. If your group is not listed CLICK '*Click Here' in the line of text that reads "*Couldn't find what you were looking for? **Click Here**"

This will change the second *Drop Down Menu* to a text box where you can manually enter your group information.

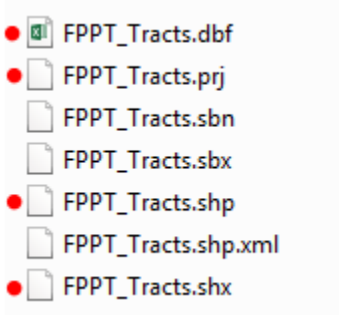
3. Enter your unlisted **Group** name
4. Enter your desired **Password**
5. Reenter the same **Password**
6. Enter your **Name, Job Title,** and **Registration Code** (optional)
7. CLICK **Submit**

An email will be sent to FPPT Support, who will then review your information and grant your account access to the application. Since you manually entered a new group name, upon review, this group will be added to the application's drop down menu and included in your account information.

How do I start a new tract by uploading an existing shapefile?

1. From the *Find Tract screen*, CLICK **Start a New Tract**
2. CLICK **Upload Shapefile and Zoom to Tract**

In order to successfully upload a shapefile, you will need a zip file that contains all four *essential* shapefile components: .shp, .shx, .prj, and .dbf. If your zip file does not contain all four components, your upload will be unsuccessful.



If your shapefile contains additional files, such as .sbn, .sbx, .shp.xml, *include them* in your zip file as well. Including these files will not negatively impact your upload, but excluding these files could negatively impact your data file.

3. CLICK **Browse**

This will open your *File Explorer* window so that you can navigate to the folder where your zip file is located.

4. Select your zip file, CLICK **Open**
5. If your shapefile uploads successfully, you will be taken to a form where you can enter **Tract Name, Tract Label, Last Name, First Name, Middle Name,** and **Tract Project Comments and Remarks**
6. CLICK **Save**

You will be taken to the *Map View* where you will be zoomed in to your shapefile and the *Edit Tract Boundary* tool will be active. You can edit the tract boundary, or visit the *Management Tract Home Page* using the *Home Button* 

How do I start a new tract by searching an address or place name?

1. From the *Find Tract* screen, CLICK **Start a New Tract**
2. CLICK **Search by Address or Place Name**

You will arrive at a screen where you can manually enter an address or place name into a text box:

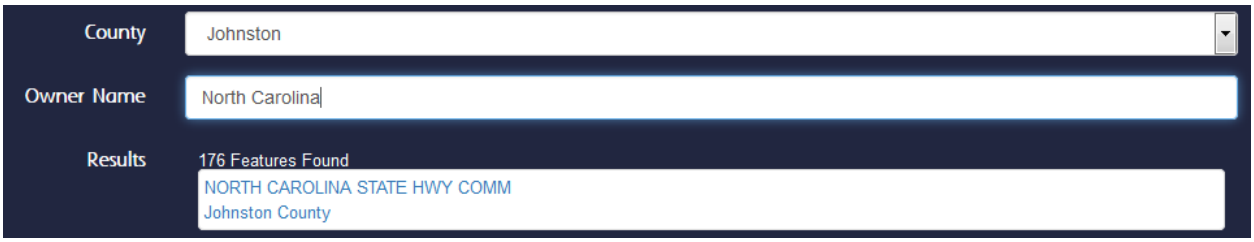
The search information utilizes Google Mapping technology, so as you enter your information, it will begin to auto-complete. If you see your address in the results that pop up, CLICK that address. If you do not see your address or place in the results, continue to enter your information and then press *Enter* when you are finished. You will be taken to the *Map View*, zoomed in to the address that you specified.

3. Using the *Selected Parcels* tool, you can create your tract boundary by selecting existing parcels or drawing your own polygon.
4. Once you have selected the area to represent your tract boundary, CLICK **Create Tract from Drawn Polygon / Create Tract from Selected Parcel(s).**

How do I start a new tract using the county and owner name?

1. From the *Find Tract* screen, CLICK **Start a New Tract**
2. CLICK **Search By County and Owner Name**

You will arrive at a screen where you can select the county name from a drop down menu and enter the owner name in the text box:



Since the owner name is part of a database, it is important to make sure you spell the names correctly. Misspelled names could lead to a result of "0 Features Found". Common names, such as North Carolina, can yield a very large number of results. In the case of a specific owner, such as "Johnson", including the first name could help reduce the number of records that are returned.

Once you locate the feature you would like to use to create your tract boundary, CLICK the link located in the *Results* section of this page. You will be taken to the *Map View*, zoomed in to that parcel.

3. Using the *Selected Parcels* tool, you can create your tract boundary by selecting existing parcels or drawing your own polygon.
4. Once you have selected the area to represent your tract boundary, CLICK **Create Tract from Drawn Polygon / Create Tract from Selected Parcel(s).**

How do I start a new tract by browsing the map by county?

1. From the *Find Tract* screen, CLICK **Start a New Tract**
2. CLICK **Go to County View**

You will arrive at a screen where you can select the county name from a drop down menu:

After selecting the county from the menu, you will be taken to the *Map View*, zoomed in to the county level.

3. Zoom in on the area of interest until you see the parcel layer displayed
4. Using the *Selected Parcels* tool, you can create your tract boundary by selecting existing parcels or drawing your own polygon.
5. Once you have selected the area to represent your tract boundary, CLICK **Create Tract from Drawn Polygon / Create Tract from Selected Parcel(s).**

How do I start a new tract by entering known map coordinates?

1. From the *Find Tract* screen, CLICK **Start a New Tract**
2. CLICK **Go to Map Coordinates**

You will arrive at a screen where you can manually enter the latitude and longitude (comma separated) for the parcel you would like to work with:

3. After you enter the coordinates, CLICK **Submit**

After clicking submit, you will be taken to the *Map View*, zoomed in to the coordinates that you entered.

4. Using the *Selected Parcels* tool, you can create your tract boundary by selecting existing parcels or drawing your own polygon.
5. Once you have selected the area to represent your tract boundary, CLICK **Create Tract from Drawn Polygon / Create Tract from Selected Parcel(s).**

How do I create a tract using the Draw Polygon tool?

1. From the *Find Tract* screen, CLICK **Start a New Tract**

When you select any option for starting a new tract, other than uploading a shapefile, you will be able to *draw your own polygon*.

2. In the *Selected Parcels* window, CLICK **Draw My Own Polygon**
3. Move your cursor over the map where you would like to begin drawing your polygon
4. Use a single CLICK to initiate your drawing session, clicking one time each time you would like to change directions.
5. On your final click, double CLICK. ** Double clicking will automatically close your polygon, you do not have to line up your first and last click. **
6. CLICK **Create Tract from Drawn Polygon**

How do I create a tract by selecting existing parcels?

1. From the *Find Tract* screen, CLICK **Start a New Tract**

When you select any option for starting a new tract, other than uploading a shapefile, you will be able to *create a tract using existing parcels*.

How do I use the advanced edit tools to edit my tract boundary?

The *Edit Tract Boundary* window provides multiple ways to manipulate your tract boundary.

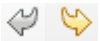
1. If you have multiple parcels within your boundary, you can use the **Selection** icon to create a new selection, add to an existing selection, or remove from selection to only work with the parcels of interest. The **Eraser** icon will clear your current selection entirely.
    a. Once you have selected an individual parcel or area, you can use the *Delete* icon to delete that feature entirely.
2. The **cut** tool allows you to create a new polygon within your current tract boundary.
    a. Single CLICK outside of the existing boundary to initiate the cut and double CLICK outside of the existing boundary to complete the cut. Example result below:
        i. Original:

        ii. Polygon Cut:

3. The **Union** tool is used to combine multiple polygons into one polygon.
    a. Make a new selection to include all polygons you would like to combine
    b. CLICK the **Union** icon to dissolve the boundary that currently separates these polygons.
4. The **Reshape** tool allows you to redraw the boundary how you would like it represented. ** The **Reshape** tool ONLY acts on the boundary that is located to the *outside* of the line you are drawing. **

a. CLICK the **Reshape** icon and move your cursor over the map window
b. Initiate your reshape using a single CLICK and complete your reshape using a double CLICK
c. Once completed, your boundary will represent the line that you have drawn. Example result below:
    i. Original:

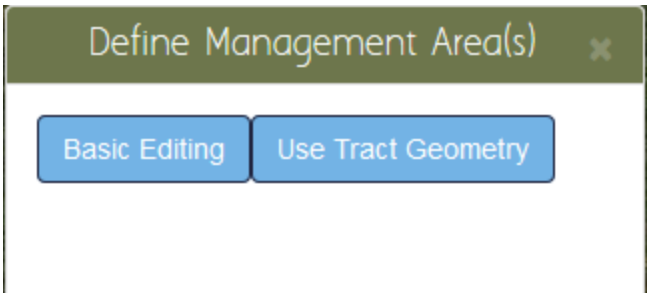
    ii. Reshaped Boundary:

You can *Undo* and *Redo* edits using the arrows  and *Abort* edits or *Save* & *Complete* using the associated buttons 

.

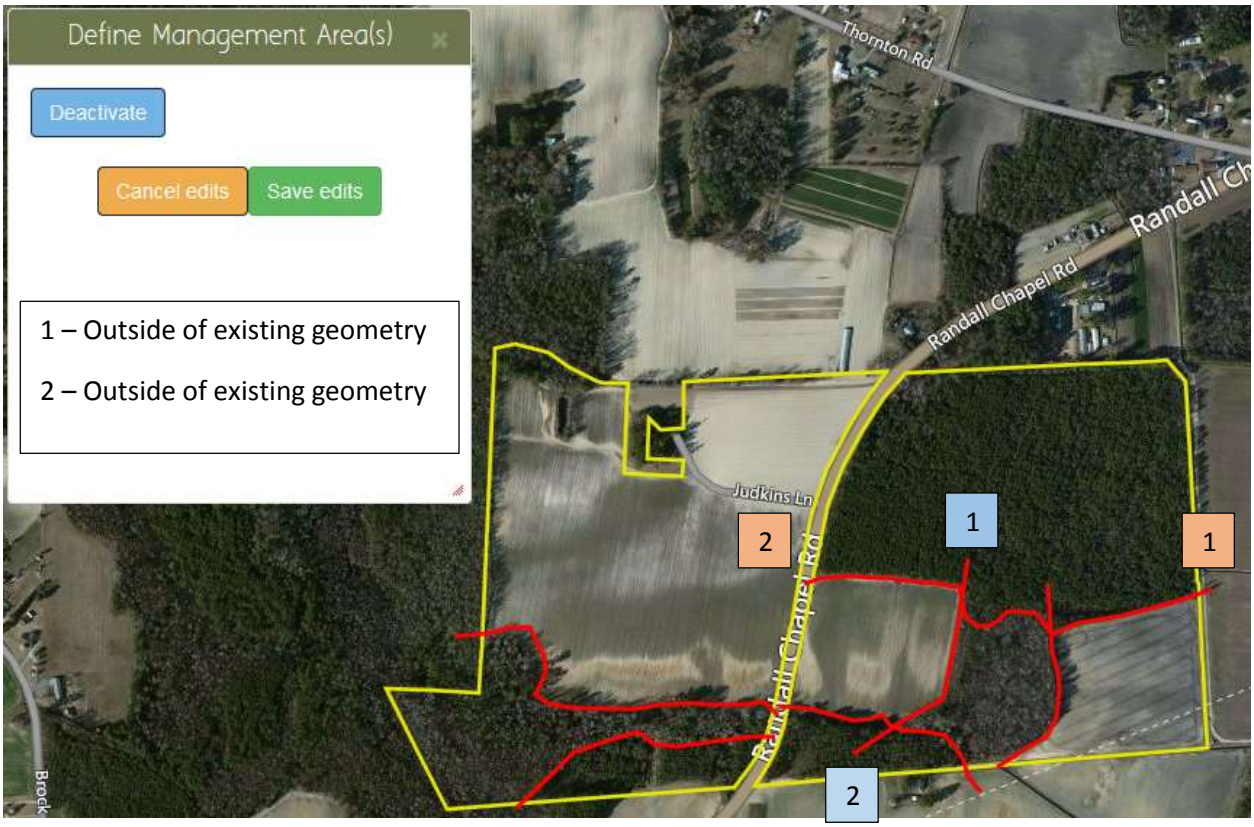
How do I create management areas using the tract geometry?

1. Reach the *Define Management Areas* map view by visiting the **Tract Home Page** or selecting *Define Management Areas* after creating a new tract.
2. In the *Define Management Area(s)* window, CLICK **Use Tract Geometry:**

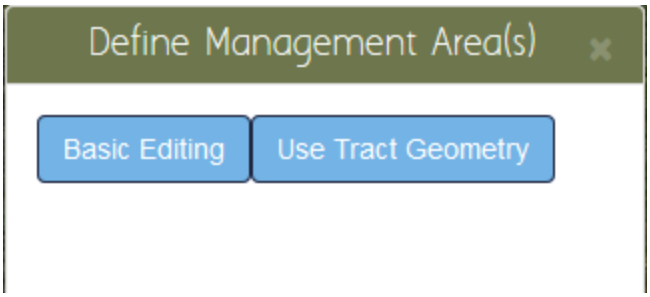


How do I use basic editing to split my tract(s) into management areas?

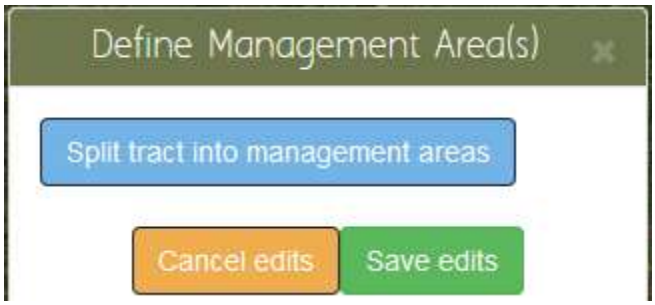
When using basic editing to split tract(s) into management areas, it is important to remember to place your clicks outside of the existing geometry:



1. Reach the *Define Management Areas* map view by visiting the **Tract Home Page** or selecting *Define Management Areas* after creating a new tract.
2. In the *Define Management Area(s)* window, CLICK **Basic Editing**:



3. CLICK **Split tract into management areas**:

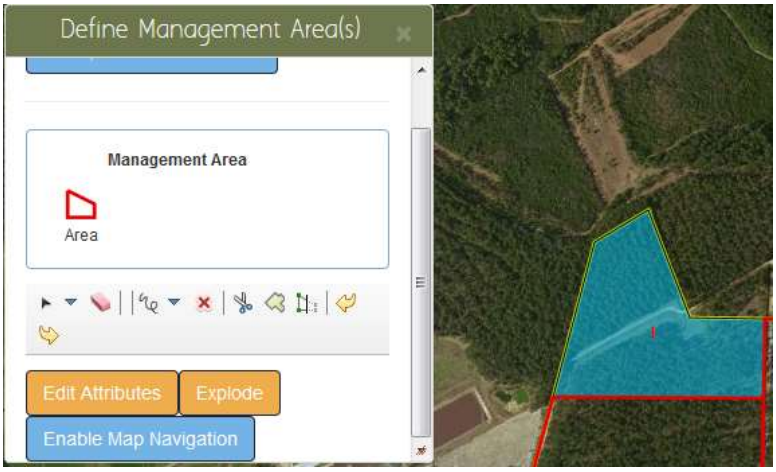


4. Use a single CLICK located on the outside of the existing tract geometry to begin your line.
5. CLICK each time you would like to create a new segment/change directions.
6. Use a double CLICK located on the outside of the existing tract geometry to complete your line.
7. Repeat steps 4-6 as necessary to define all management areas within the tract.
8. Once you have created all management areas, CLICK **Save Edits**

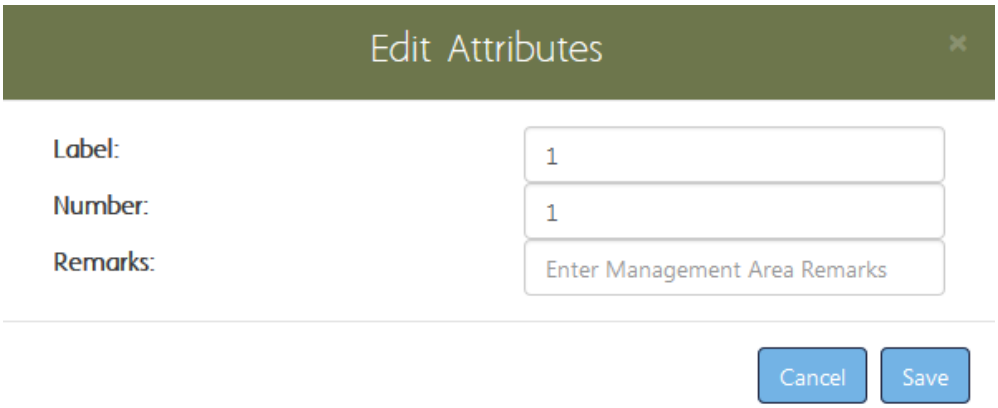
How can I edit management area attributes in the map view?

1. CLICK **Advanced Editing** in the *Define Management Area(s)* window:

2. Use the selection menu  to create a new selection around the management area you would like to edit.
3. Once your management area is selected (highlighted in blue), CLICK **Edit Attributes**:

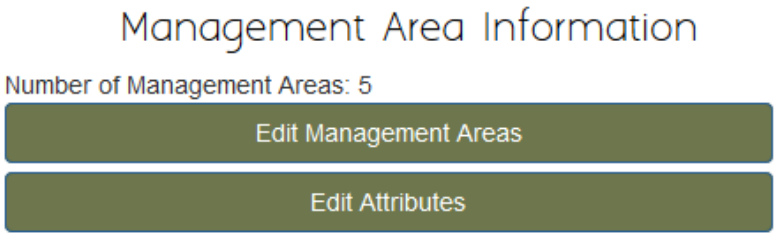


4. Make any edits to the *label, number, or remarks* in the window then CLICK **Save**:

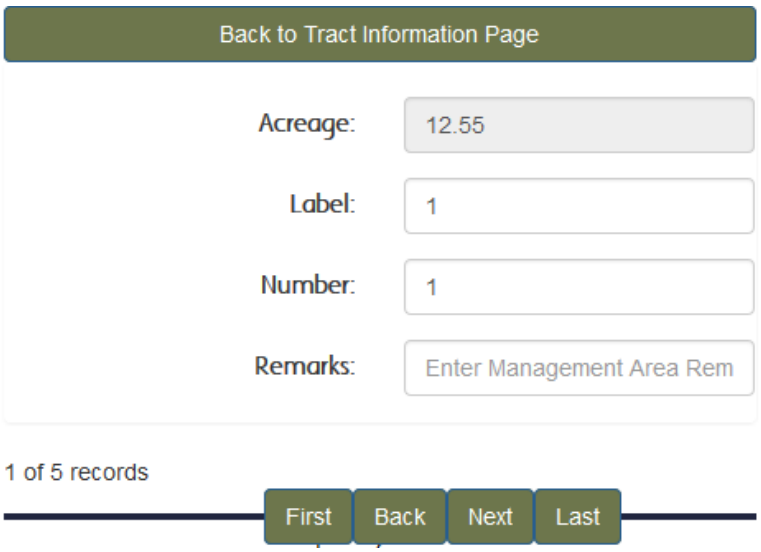


How can I edit management area attributes in the Tract Home window?

1. Visit the *Management Tract Home* window.
2. Scroll down until you see the *Management Area Information* section and CLICK **Edit Attributes**:



3. Navigate through the existing management areas using the **First, Back, Next, or Last** buttons to navigate the *Preview Map* and edit the desired *label, number, or remarks* in the window:



What is located in the Tract Information section of the Tract Home window?

Edit Tract Info button: Allows you to edit the information you entered while creating your tract boundary. This information includes *Tract Name, Tract Label, Last Name, First Name, Middle Name,* and *Tract/Project Comments and Remarks*.

Edit Tract Boundaries Button: Takes you to the map viewing window where you can make edits to the tract boundary.

Delete Tract Button: Gives you the option to permanently delete your tract from the FPPT.

Information Display Window: This display will show you the *Tract ID, Tract Name, Acreage, County, Owner Name, Location (lat/long), Remarks,* and the *User Name* associated with the tract.

Transfer Button: The transfer button provides a drop down menu that contains a list of all users within your organization. From this list, you can select the user you would like to transfer the tract to, and transfer the tract.

Group Edit Checkbox: By selecting (checking) the group edit box, you are granting edit rights to all users within your organization. By deselecting (unchecking) the group edit box, you are not granting edit rights to all users within your organization.

What is located in the Management Area Information section of the Tract Home window?

Add Management Areas Button: Takes you to the map viewing window where you can edit or create management areas within your tract boundary.

Management Area Information: You can find information about the management areas within your tract such as: *Tract Number, Tract Label, Acreage,* and *Remarks.* You can also find the total number of management areas within your tract above the Add Management Areas button.

What is located in the Generate Information section of the Tract Home window?

Create PDF Map Button: Takes you to the map viewing screen where you can add temporary markups to your tract

Download GIS Data: Allows user to download GIS Data

Update Site and Soils Information: Gives the user the option of updating the Site and Soils Information after making changings to the *Tract Boundary* or *Management Areas*.

View Site Summary Report: Provides user with General Tract Information, Environmental Regulation Considerations, Overall Tract Characteristics, Dominant Mapunit Soil Characteristics and Ratings, Federal or State Endangered or Threatened Species within two miles of the tract, and Management Area Characteristics.

View Detailed Soil Report: Provides user a report with a Preview Map, Tract Mapunit Suitability Summary, and Mapunit Soil Characteristics and Ratings.

View Soil Summary Report: Provides user with a Preview Map and Tract Mapunit Suitability Summary.

How do I generate a report for my tract?

1. Visit the *Management Tract Home* page
2. Scroll down until you see the **Update Site and Soils Information** button > CLICK that button

The button should now read "Request Sent" and a message will display stating "Generating report data…An email will be sent when processing is complete. You can wait on this screen until your reports generate or you can continue to do other tasks until you receive an email that says your reports have been generated. The email will look like this:

Your recently updated Forestry Preharvest Planning Tool reports for tract #57460, are ready for download from the links below.

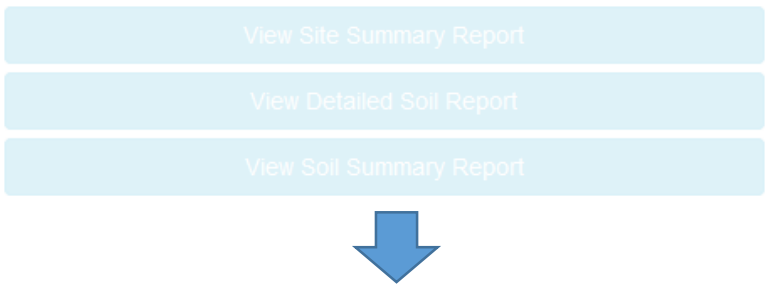
Site Summary Report: https://dev.ncmhtd.com/NCDACS/ForestService/NcfsApps/fppt/Report.aspx?id=57460&reportname=FPPT
Soils Summary Report: https://dev.ncmhtd.com/NCDACS/ForestService/NcfsApps/fppt/Report.aspx?id=57460&reportname=SoilReport
Detailed Soils Report: https://dev.ncmhtd.com/NCDACS/ForestService/NcfsApps/fppt/Report.aspx?id=57460&reportname=SoilSummaryReport

You can also access your reports by logging into your account at
https://dev.ncmhtd.com/NCDACS/ForestService/NcfsApps/Login.aspx

The links provided in the email will take you directly to the pdf version of your reports, while the final link will take you back to the application where you can view your reports via the *Management Tract Home Page*.

Once your reports have been generated, the buttons on the *Management Tract Home Page* will transition from transparent color to full color:

Before:

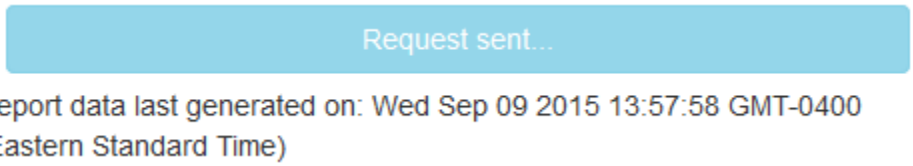


After:

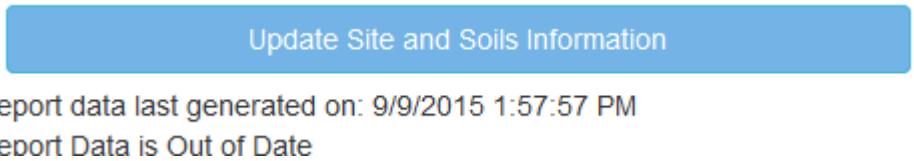
3. Once your reports are generated, CLICK the button of the report you wish to view
4. This will open a link to the pdf report that you can choose to save or open and view.

How do I know my report is up to date?

After you run your report, you will see the following message:



If you update the geometry of your *Tract Boundary* or any *Management Areas*, the message will change when you return to the *Management Tract Home* page. When you return, you will see the following message:



What does the site summary report tell me?

General Tract Information: Tract ID, Tract Name Tract Label, County, NCFS Contact Information, Date Retrieved, Tract Acres, River Basin, Physiographic Region, Geologic Province, Latitude, Longitude

Environmental Regulation Considerations: Links to Environmental Regulation Considerations – Forest Practices Guidelines (always apply), NC G.S. 77-13 Obstructing streams is a misdemeanor, NC G.S. 77-14 Obstructions in Streams and drainage ditches, NCDWR Riparian Buffer Rules apply?, Riparian Buffer Rule Forestry Leaflet, Riparian Buffer Rule Administrative Code.

Overall Tract Characteristics: Surface waters present (USGS 1:24,000 Streams, NCDWR Classified Streams), NCDWR Surface Water Classifications, Wetlands present (National Wetlands Inventory, NC Coastal Area Management), Steep slopes present (>25%) Min % slope, Avg % slope, Max % slope

Dominant Mapunit Soil Characteristics and Ratings: Dominant Maniput Ratings Information - Maniput symbol, Maniput Name, Hydric Rating, Horizon A (Surface), Horizon B (Sub-Layer), Dominant Maniput Component.

Information about common harvest activities - Construction Limitations for Haul Roads and Log Landings, Harvest Equipment Operability, Erosion Hazard: Off-Road Off-Trail, Erosion Hazard: Road/Trail, Soil Rutting Hazard, Suitability for Roads on Natural Surface

Ratings for Common Harvest Activities – Slight, Severe, Poorly Suited, Well Suited, Moderate, Moderately Suited

BMP Awareness – Information about what BMPs and recommendations to follow when doing common harvest activities

Federal or State Endangered (E) or Threatened (T) Species within two miles of the tract: Species information - Scientific Name, Common Name, Taxonomic Group, Federal Status, NC Status

Link to additional information http://portal.ncdenr.org/web/nhp/

Management Area Characteristics: Provides a breakdown of multiple characteristics of a management area on a site that is specific to that management area versus the whole site.

Information provided - Management Area Acres, Management Area Label, Surface Waters Present, Wetlands Present, Steep Slopes Present, Dominant Mapunit Soil Characteristics/Ratings, Common Harvest Activity (Ratings, BMP Awareness)

Disclaimer: Not all streams and wetlands are shown – An absence of streams, waterbodies, or wetlands reported in this document does not imply that these types of features are not present on the site. You should inspect the site to verify on-the-ground locations of streams, waterbodies, and wetlands that are protected under the FPGs and GSs.

Soil conditions indicate additional planning or professional advice may be needed to ensure water quality is sufficiently protected during harvest operations.

Information provided in the Site Summary report does not replace the need for on-the-ground truthing. This information should only be used to begin planning your harvest and formulation an approach. As always be sure to use BMPs and refer to the appropriate guidelines, restrictions, and ensure you consult with the appropriate professionals before you take any action on the ground.

What does the soil summary report tell me?

Preview Map: Information provided - a breakdown of the soils located on you tract, Map Unit Symbols & Map Unit Description, Scale, North Arrow, USGS 1:24,000 Streams

Tract Mapunit Suitability Summary: Breaks down the tract mapunit and provides a suitability summary. This information allows the user to reference the preview map to locate the areas where the most favorable soils are found.

Disclaimer: Information provided in the Soils Summary report does not replace the need for on-the-ground truthing. This information should only be used to begin planning your harvest and formulation an approach. As always be sure to use BMPs and refer to the appropriate guidelines, restrictions, and ensure you consult with the appropriate professionals before you take any action on the ground.

What does the detailed soil report tell me?

Difference between Soil Summary and Detailed Soil Report: The Soils Summary Report and the Detailed Summary Report both provide a Preview Map and Tract Mapunit Suitability Summary. The Detailed Soil Report provides Mapunit Soil Characteristics and Ratings, the Soils Summary Report does not provide this information.

Preview Map: Provides a quick overview of information such as which USGS Streams are present or near the tract, Tract ID #, Scale, North Arrow, Map Unit Symbols & Map Unit Descriptions.

Tract Mapunit Suitability Summary: Allows the user to reference information about Common Harvest Activities (construction of haul roads, harvest equipment operability, erosion hazards, soil rutting) on the tract and about what their Most Favorable Rating (slight, well-suited, moderate) would be on the site, which Soil Map Units would be most favorable for each common harvest activity, and what BMPs you should be aware of.

Mapunit Soil Characteristics and Ratings: Provides some of the same information as the Tract Mapunit Suitability Summary (Common Harvest Activity, Rating, BMP Awareness) but also provides more details such as: Tract ID, Tract Name, Mapunit Symbol, Mapunit Name, Drainage Class, Flooding Frequency, Horizon A & B, Mapunit Major Component, Taxonomic Class, Hydric Rating, Frost Free Days.

Disclaimer: Information provided in the Detailed Soil Report report does not replace the need for on-the-ground truthing. This information should only be used to begin planning your harvest and formulation an approach. As always be sure to use BMPs and refer to the appropriate guidelines, restrictions, and ensure you consult with the appropriate professionals before you take any action on the ground. Soil conditions indicate additional planning or professional advice may be needed to ensure water quality is sufficiently protected during harvest operations.

How do I use the draw toolbar on my map?

The draw toolbar allows the user to add temporary markups to the PDF map before printing. These markups are not saved into the database and will not be available during the next session.

1. CLICK 

tab under Tract Home
2. CLICK on the draw toolbar  to add temporary markups to your PDF map.

   **On the left side of the map you will see menu of options available outlined in red are the two draw toolbars available. The draw toolbar on the bottom is the one that adds temporary

markups to your PDF map.**

3. Follow the steps under *Customizing Maps* in this User's Guide to **Add Temporary Markups** to your PDF map.

How do I print my map once I am finished adding features or markups?

1. After adding markups on your map CLICK the  button.
2. Then you will be prompted to select *Page Size* >*Orientation*> *Graticule*>*Scale* of your map.

User is also able to add *Map Name*, *Tract Name*, *Tract Label*, *Company Name*, and *Author* to the map.

How do I change the pdf while keeping my customization?

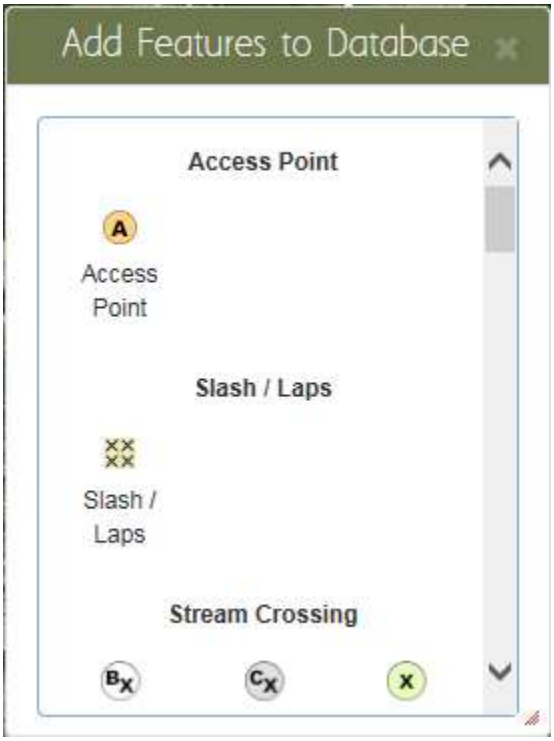
Permanent Features are permanently saved with your tract information, and include features such as decks, SMZs, stream crossings, skid trails, and utility lines. If you leave your current session and come back to it later, these features will still be available.

1. CLICK on the draw toolbar  to add permanent features to your PDF map.

**On the left side of the map you will see menu of options available outlined in red are the two draw toolbars available. The draw toolbar on the top is the one that adds permanent features to

your PDF map.**

2. The Add Features Database popup will apear after selecting the draw tool

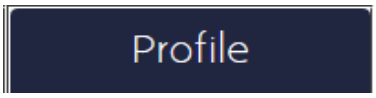


3. The user then selects which feature to add to map. The user then places the feature on their map. The added feature then will automatically be available to user in the next session.

How do I share my tract?

To share your tract with other users

1. CLICK 

tab
2. CLICK 

tab
3. CLICK the Edit Tab located to the right hand side of the Account Information Header


4. Scroll down to


5. CLICK the dropdown box


6. CLICK *Share All Tracts* which allows all users within your organization to have access to the tracts you have created.
7. CLICK *Remove All Sharing* removes the ability of users within your organization from seeing the tracts you have created.
8. After selecting *Share All Tracts* or *Remove All Sharing* CLICK 

tab to save your changes to your account.

How do I transfer my tract?

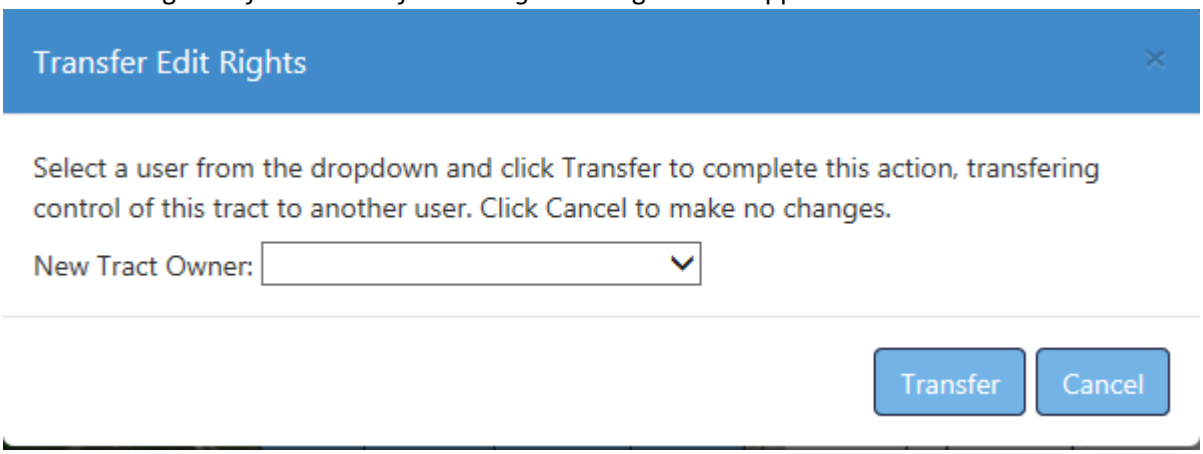
To transfer tract ownership to someone else within your group

1. Select 

2. Under *Tract Information* CLICK 

tab located by the *User Name* section

3. After selecting *Transfer* the *Transfer Edit Rights* dialog box will appear



4. CLICK the New Tract Owner from the dropdown box

5. CLICK 

tab to transfer control of this tract to another user.
6. CLICK 

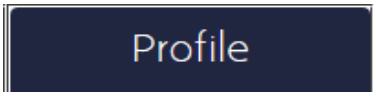
tab to cancel changes.

Once you **Transfer Edit Rights** you will no longer be able to *Edit Attributes*, *Management Area*, or the *Tract Boundary* of you tract.

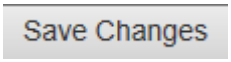
How do I edit my account information?

To edit your account information for the FPPT Application

9. CLICK 

tab
10. CLICK 

tab
11. CLICK the Edit Tab located to the right hand side of the Account Information Header

12. You will then be able to change account information such as
    a. Username (email or NCID)
    b. Name
    c. Suffix
    d. Job Title
    e. Phone Number
    f. Address
    g. Group
    h. Manage Data (Tract Sharing, Transfer Tracts)
13. After changing your Account Information CLICK 

tab to save your changes that you have made.

GLOSSARY

A.

Access Road - A temporary or permanent entry into a land parcel.

Accessibility - An aggregate measure of the degree of ease with which a place, person, or thing can be reached, depending on factors such as slope, traffic, distance, and so on.

Aerial Photograph (Aerials) - A photograph of the earth's surface taken from a platform flying above the surface but not in orbit, usually an aircraft. Aerial photography is often used as a cartographic data source for basemapping, locating geographic features, and interpreting environmental conditions.

ANSI - Acronym for *American National Standards Institute*. The private, nonprofit organization that develops U.S. industry standards through consensus and public review.

Authentication - The process of validating the identity of a user who logs on to a computer system, network, or Web site.

Axis - A line along which measurements are made in order to determine the coordinates of a location. In a spherical coordinate system, the line that directions are related to and from which angles are measured.

B.

Barrier - Obstructions to pedestrian, horse, and/or vehicular traffic. They are intended to restrict such traffic to a specific location.

Base Height - In aerial photography, the height or altitude from which a photograph is taken.

Base Layer - A data layer in a GIS to which all other layers are geometrically referenced.

Basemap - A map to which GIS data layers are registered and rescaled. A map depicting background reference information such as landforms, roads, landmarks, and political boundaries, onto which other thematic information is placed. A basemap is used for locational reference and often includes a geodetic control network as part of its structure.

Bedding - A site preparation method in which special equipment is used to concentrate surface soil and forest litter into a ridge 6 to 10 inches high on which forest seedlings are to be planted.

Benchmark – In surveying, a brass or bronze disk, set in a concrete base or similarly permanent structure, inscribed with a mark showing its elevation above or below an adopted vertical datum.

Best Management Practice (BMP) - A practice, or combination of practices, that is determined to be an effective and practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

Biomass - The total amount of organic matter in a defined area; usually refers to vegetation.

Bottom Lands - The lowlands or flood plain adjacent to streams and rivers.

Boundary - A line separating adjacent political entities, such as countries or districts; adjacent tracts of privately-owned land, such as parcels; or adjacent geographic zones, such as ecosystems. A boundary is a line that may or may not follow physical features, such as rivers, mountains, or walls.

Boundary Line - A division between adjacent political entities, tracts of private land, or geographic zones. Boundary lines may be imaginary lines, physical features that follow those lines, or the graphical representation of those lines on a map. Boundary lines between privately owned land parcels are usually called property lines.

Boundary Monument - An object that marks an accurately surveyed position on or near a boundary.

Bridgemat - Some type of heavy panel which can be used in multiple to construct a temporary crossing over streams, ditches or other small waterways during logging operations. Most bridgemats are constructed either of heavy wood timbers or fabricated steel panels. Some new panels are being tested that are built of engineered lumber and/or composite materials.

Broad Based Dip - Surface runoff diversions built into the bed of a forest road that consist of a long approach section, a low, out-sloped middle section, and a short terminal section with a reverse grade.

Buffer Strip - A vegetation strip or management zone of varying size, shape, and character maintained along a stream, lake, road, recreation site, or different vegetative zone to mitigate the impacts of actions on adjacent lands, to enhance aesthetic values, or as a best management practice.

C.

Cartography - The art and science of expressing graphically, usually through maps, the natural and social features of the earth.

Chain - A unit of length equal to 66 feet, used especially in U.S. public land surveys. Ten square chains equal 1 acre.

Channel - A natural water-bearing trough cut vertically into low areas of the land surface by erosive action of concentrated flowing water; also a ditch or canal excavated for the flow of water.

Check Dam - A small dam constructed in a gully or other small watercourse to decrease the stream flow velocity, minimize channel scour and promote deposition of sediment. It creates a miniature sediment basin.

Chemical Site Prep - The use of herbicides to reduce competition from weeds, grasses and trees that compete with newly planted seedlings.

Clearcutting - A regeneration method of timber harvesting in which all suitable trees within a designated area are removed, leaving ground material in place, along with stumps and leftover woody debris. This method typically is needed to successfully re-generate most pine species, and some hardwood species of trees. Note that clearcutting should not be confused with land clearing operations, in which all material is scraped off the ground and stumps are removed to allow for a conversion of use to non-forestry purposes.

Clip - A command that extracts features from one feature class that reside entirely within a boundary defined by features in another feature class.

Color Map - A set of values that are associated with specific colors. Color maps are most commonly used to display a raster dataset consistently on many different platforms.

Contour - An imaginary line on the surface of the earth connecting points of the same elevation. A line drawn on a map representing points of the same elevation.

Contour Interval - The difference in elevation between adjacent contour lines.

Contour Line - A line on a map that connects points of equal elevation based on a vertical datum, usually sea level.

Coordinates - A set of values represented by the letters *x*, *y*, and optionally *z* or *m* (measure), that define a position within a spatial reference. Coordinates are used to represent locations in space relative to other locations.

Crop Marks - Marks that indicate the edge of the page of a finished, printed map. Cropmarks are used as a reference for trimming excess paper after printing.

Culvert - A metal, plastic, or concrete pipe through which surface water can flow under roads or trails.

Cut - Portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to excavated surface.

D.

Day-Lighting - A practice in which trees shading an access road are removed to increase the sunlight on the roadway and along its periphery. This relatively inexpensive practice maximizes forest edge and cover for wildlife and helps maintains passable roads year-round by speeding up the drying process.

Decimal Degrees - Values of latitude and longitude expressed in decimal format rather than in degrees, minutes, and seconds.

Deck - An area designated on a logging job for the temporary storage, collection, handling, sorting and/or loading of trees or logs.

Degree - A unit of angular measure represented by the symbol °. The earth is divided into 360 degrees of longitude and 180 degrees of latitude.

Degree Slope - One method for representing the measurement of an inclined surface. The steepness of a slope may be measured from 0 to 90 degrees.

Detritus - Small pieces of dead and decomposing plants and animals. Detached and broken-down organic fragments of structure. Small organic particles such as leaves and twigs.

Distance - The measure of separation between two entities or locations that may or may not be connected, such as two points. Distance is differentiated from length, which implies a physical connection between entities or locations.

Diversion (Ditch) - A drainage depression or ditch built across a slope to intercept surface or subsurface runoff or to divert surface water from that slope.

Drainage - All map features associated with the movement and flow of water, such as rivers, streams, and lakes.

Duff - Partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

E.

Elevation - The vertical distance of a point or object above or below a reference surface or datum (generally mean sea level). Elevation generally refers to the vertical height of land.

Ephemeral Stream - A stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel. Ephemeral stream bottoms are usually above the water table, and covered with litter similar to the forest floor.

Erosion - The wearing away of the land surface by rain, running water, wind, ice, gravity, or other natural or anthropogenic agents. Also see "Accelerated Erosion".

Export - To move data from one computer system to another, and often, in the process, from one file format to another.

F.

Feature - A representation of a real-world object on a map.

Feller Buncher - A tractor specially built for harvesting trees. Feller bunchers use either a large set of cutting shears, a heavy-duty chainsaw bar, or a large circular sawhead to cut the trees. Different feller buncher types include: Rubber-tired models, with either 4-wheels or 3-wheels; Track-mounted models, on either a rotating platform or fixed chassis.

Fertilizers - Any substance or combination of substances used principally as a source of plant food or soil amendment.

Fertilization - The addition of nutrient elements to increase growth rate or overcome a nutrient deficiency in the soil.

Field Mapping - In geoprocessing, defining the field structure and content for an output dataset.

Fill - The interior of a polygon; the area inside the perimeter.

Fill Symbol - A color or pattern used to fill polygons on a map.

Filter Strips - Belts of vegetation-grass, shrubs, and/or trees-maintained along streams or on the contours insloping fields to trap sediment and agricultural chemicals before they enter waterways.

Firebreak - A strip of land or trail/pathway that is maintained as an open corridor that can help slow down or stop wildfires. Trails, roads, rivers, canals, or utility rights-of-way may be considered as firebreaks in times of an emergency if necessary.

Fireline - Any cleared trail or pathway that is created to surround an area that is burning or is scheduled to be burned, in order to prevent the fire from spreading outside the intended or desired area. A fireline should expose the bare mineral soil so there is no debris that can catch on fire and allow the fire to spread. A fireline may be installed using a tractor blade, a specially-designed fire-plow, or by using hand tools such as shovels and rakes. Firelines are used to control wildfires and to contain prescribed burns.

Flag - A marker that identifies or calls attention to something, indicating importance or the need for further attention.

Flagging - Colored plastic ribbon attached to trees or stakes to make boundaries, stakes, and other markers visible.

Flashboard Risers - A system of removable boards or panels that can be installed on culvert outlets or in drainage ditches to regulate the amount and/or flow of water in ditches and the nearby ground water levels.

Flowing Water - Surface water movement due to the influence of gravity or of tides.

Ford - A submerged stream crossing which will bear intended traffic.

Forestland - All land which is capable of supporting a merchantable stand of timber and is not being actively used for a use which is incompatible with timber growing.

Forestland Owner - Any person in actual control of forestland, whether such control is based either on legal or equitable title, or on any other interest entitling the holder to sell or otherwise dispose of any or all of the timber on such land in any manner; PROVIDED, that any lessee or other person in possession of forestland without legal or equitable title to such land shall be excluded from the definition of "forestland owner" unless such lessee or other person has the right to sell or otherwise dispose of any or all of the timber located on such forestland.

Forwarder - A self-propelled machine, usually self-loading, that transports trees or logs by carrying them completely off the ground.

FPGs ("Forest Practices Guidelines Related to Water Quality") - North Carolina administrative code that was adopted in 1989 (becoming effective January 1, 1990) defining the need to protect water quality during forestry related operations. Complying with the FPG's will allow a forestry operation to remain exempt from permitting requirements under the state's SPCA. Correctly implementing appropriate BMPs during a forestry site-disturbing operation typically will allow that forestry operation to comply with the FPG's.

Furrowing - A form of site preparation work done with a V-Blade or fire plow which pushes aside debris and vegetation and/or cuts a trench into the mineral soil to enhance tree planting.

G.

Geocentric Coordinate System - A three-dimensional, earth-centered reference system in which locations are identified by their x-, y-, and z-values. The x-axis is in the equatorial plane and intersects the prime meridian (usually Greenwich). The y-axis is also in the equatorial plane; it lies at right angles to

the x-axis and intersects the 90-degree meridian. The z-axis coincides with the polar axis and is positive toward the north pole. The origin is located at the center of the sphere or spheroid.

Geocode - A code representing the location of an object, such as an address, a census tract, a postal code, or x,y coordinates.

Geodatabase - A database or file structure used primarily to store, query, and manipulate spatial data. Geodatabases store geometry, a spatial reference system, attributes, and behavioral rules for data. Various types of geographic datasets can be collected within a geodatabase, including feature classes, attribute tables, raster datasets, network datasets, topologies, and many others. Geodatabases can be stored in IBM DB2, IBM Informix, Oracle, Microsoft Access, Microsoft SQL Server, and PostgreSQL relational database management systems, or in a system of files, such as a file geodatabase.

GIS - Acronym for *geographic information system*. An integrated collection of computer software and data used to view and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.

GIS Coordinate - In Survey Analyst for field measurements, the single coordinate for a survey point that is the best overall representation for that survey point's location, defined by one or more projects. Feature geometry is always linked to the GIS coordinate.

GPS - Acronym for *Global Positioning System*. A system of radio-emitting and -receiving satellites used for determining positions on the earth. The orbiting satellites transmit signals that allow a GPS receiver anywhere on earth to calculate its own location through trilateration. Developed and operated by the U.S. Department of Defense, the system is used in navigation, mapping, surveying, and other applications in which precise positioning is necessary.

Grade - The slope or a road or trail; the change in elevation per unit of horizontal distance traveled, usually expressed as a percent.

Gradient - The ratio between vertical distance (rise) and horizontal distance (run), often expressed as a percentage. A 10-percent gradient rises 10 feet for every 100 feet of horizontal distance. The inclination of a surface in a given direction.

Grapple - Hinged jaws or arms capable of being opened and closed and used to grip logs or trees during skidding or loading.

Grapple Skidder - A skidder fitted with a grapple for skidding logs.

Graticule - A network of longitude and latitude lines on a map or chart that relates points on a map to their true locations on the earth.

Ground Cover - Any vegetative growth of other natural or manmade material that renders the soil surface stable against rainfall impact or accelerated erosion.

Ground Truth - The accuracy of remotely sensed or mathematically calculated data based on data actually measured in the field.

Groundwater - The subsurface water in both phreatic (saturated) and vadose (unsaturated) zone water at a pressure equal to or greater than atmospheric that is free to move under the influence of gravity. Groundwater is recharged by infiltration and enters streams through seepage and springs.

GSDI - Acronym for *global spatial data infrastructure*. A global framework of technologies, policies, standards, and human resources necessary to acquire, process, store, distribute, and improve the use of geospatial data across multiple countries and organizations.

Gully Erosion - The removal of soil by water running in narrow channels, which may be eroded to depths ranging from 1 to 20 feet to as much as 75 to 100 feet.

H.

Harvesting - The felling, loading, and transportation of forest products, roundwood or logs.

Hectare - A metric areal unit of measure equal to 10,000 square meters. One hectare is equal to 100 ares or 2.47 acres.

Height - The vertical distance between two points, or above a specified datum.

High Grading - Removing all mature, good quality trees from a stand, while leaving inferior trees and less desirable species uncut. Natural regeneration from the retained trees will likely produce a poor-quality stand. High grading should be distinguished from uneven-aged management wherein some (but not all) trees in all diameter classes are removed in order to create a high-quality stand.

Horizon – In mapping, the edge of a map projection

Hydrography - The measurement and description of water features and their related land areas for the purposes of safe marine navigation.

Hydrology - The study of water, its behavior, and its movements across and below the surface of the earth, and through the atmosphere.

Hypsometry - The science that determines the spatial distribution of elevations above an established datum, usually sea level. The determination of terrain relief, by any method.

I.

Illumination - The light incident on a surface or object, either natural or artificial, as determined by the surface's slope and aspect and by the sun's azimuth and altitude.

Image - A representation or description of a scene, typically produced by an optical or electronic device, such as a camera or a scanning radiometer. Common examples include remotely sensed data (for example, satellite data), scanned data, and photographs.

Import - To bring data from one computer system or application into another. Importing often involves some form of data conversion.

Infiltration Capacity - Rate at which water moves into the soil surface.

Intermittent Streams - A watercourse that flows in a well-defined channel during wet seasons of the year but not the entire year. The water table is above the stream bottom during parts of the year.

Intersect - A geometric integration of spatial datasets that preserves features or portions of features that fall within areas common to all input datasets.

Intersection - The point where two lines cross. In geocoding, most often a street crossing.

J.

Joined Parcel - a parcel that is connected to the cadastral fabric, and shares common points with neighboring parcels.

Joining - Connecting two or more features from different sets of data so that they become a single feature.

K.

KG Blade - A type of specialized bulldozer blade used in forestry site-prep applications to cut through leftover stumps and pile large debris to help clear land for tree regeneration.

Known Point - A surveyed point that has an established x,y coordinate value. Known points are used in survey operations to extend survey computations into a project area.

Knuckleboom Loader - A piece of heavy equipment used to load trees and/or logs onto a truck or other means of transport. Smaller loaders can be mounted directly onto log trucks. Larger loaders are mounted on trailers, some of which may be self-propelled for moving around the loading yard area.

L.

Land Cover - The classification of land according to the vegetation or material that covers most of its surface; for example, pine forest, grassland, ice, water, or sand.

Landmark - Any prominent natural or artificial object in a landscape used to determine distance, bearing, or location. A building or location that has historical, architectural, or cultural value.

Laps - Tree tops and branches that remain after logging. Also known as "Slash"

Large Scale - Generally, a map scale that shows a small area on the ground at a high level of detail.

Latitude-Longitude - A reference system used to locate positions on the earth's surface. Distances east–west are measured with lines of longitude (also called meridians), which run north–south and converge at the north and south poles. Distance measurements begin at the prime meridian and are measured positively 180 degrees to the east and negatively 180 degrees to the west. Distances north–south are measured with lines of latitude (also called parallels), which run east–west. Distance measurements begin at the equator and are measured positively 90 degrees to the north and negatively 90 degrees to the south.

Layer - The visual representation of a geographic dataset in any digital map environment. Conceptually, a layer is a slice or stratum of the geographic reality in a particular area, and is more or less equivalent to a legend item on a paper map. On a road map, for example, roads, national parks, political boundaries, and rivers might be considered different layers.

Layout - The arrangement of elements on a map, possibly including a title, legend, north arrow, scale bar, and geographic data.

Legend - The description of the types of features included in a map, usually displayed in the map layout. Legends often use graphics of symbols or examples of features from the map with a written description of what each symbol or graphic represents.

Litter - The surface layer of the forest floor that is not in an advanced stage of decomposition, usually consisting of freshly fallen leaves, needles, twigs, stems, bark, and fruits.

Logging Debris - Unwanted, unutilized, and generally unmarketable accumulation of woody material in the forest such as large limbs, tops, cull logs, and stumps that remain as forest residue after timber harvesting.

Lowboy - A type of trailer used to haul heavy, off road equipment or machinery.

M.

Magnetic North - The direction from a point on the earth's surface following a great circle toward the magnetic north pole, indicated by the north-seeking end of a compass.

Main Road - Road that supports a high level of traffic, usually well built and well designed.

Map - A graphic representation of the spatial relationships of entities within an area. Any graphical representation of geographic or spatial information.

Map Document - The file that contains one map, its layout, and its associated layers, tables, charts, and reports. Map documents can be printed or embedded in other documents. Map document files have a .mxd extension..

Map Unit - The ground unit of measurement—for example, feet, miles, meters, or kilometers—in which coordinates of spatial data are stored.

Marker Symbol - A symbol used to represent a point location on a map.

Mast - A word used to describe general food sources for wildlife. Acorns, hickory nuts, walnuts and pecans are some examples of "hard" mast. Blackberries, grapes, persimmons and cherries are some examples of "soft" mast.

Measurement - An observed numerical value that is an appraisal of size, extent, or amount according to a set criteria.

Mill Site - Any place where forest products are stored, altered, or processed.

Mineral Soil - A soil or that part of a soil consisting predominately of and having its properties determined predominately by mineral matter, usually containing less than 20% organic matter.

N.

NAD 1927 - Acronym for *North American Datum of 1927*. The primary local horizontal geodetic datum and geographic coordinate system used to map the United States during the middle part of the twentieth century. NAD 1927 is referenced to the Clarke spheroid of 1866 and an origin point at Meades Ranch, Kansas. Features on USGS topographic maps, including the corners of 7.5-minute quadrangle maps, are referenced to NAD27. It is gradually being replaced by the North American Datum of 1983.

NAD 1983 - Acronym for *North American Datum of 1983*. A geocentric datum and graphic coordinate system based on the Geodetic Reference System 1980 ellipsoid (GRS80). Mainly used in North America, its measurements are obtained from both terrestrial and satellite data.

National Geodetic Vertical Datum of 1929 - The datum established in 1929 by the U.S. Coast and Geodetic Survey as the surface against which elevation data in the United States is referenced.

Natural Breaks Classification - A method of manual data classification that seeks to partition data into classes based on natural groups in the data distribution. Natural breaks occur in the histogram at the low points of valleys. Breaks are assigned in the order of the size of the valleys, with the largest valley being assigned the first natural break.

Natural Regeneration - Renewal of the forest achieved either by natural seeding or from the vegetative reproduction of the plants on the site.

Non-industrial Private Forestland (NIPF) - Forestland owned by a private individual, group, or corporation not involved in wood processing.

Non-point-source ("NPS") pollution - Pollution that enters a waterbody from a diffuse or widespread origin in the watershed. Examples include stormwater runoff or soil erosion.

Nonspatial Data - Data without inherently spatial qualities, such as attributes.

North Arrow - A map symbol that shows the direction of north on the map, thereby showing how the map is oriented.

NSDI - Acronym for *National Spatial Data Infrastructure*. A federally mandated framework of spatial data that refers to U.S. locations, as well as the means of distributing and using that data effectively. Developed and coordinated by the FGDC, the NSDI encompasses policies, standards, procedures, technology, and human resources for organizations to cooperatively produce and share geographic data. The NSDI is developed by the federal governments; state, local, and tribal governments; the academic community; and the private sector.

O.

Object - In GIS, a digital representation of a spatial or nonspatial entity. Objects usually belong to a class of objects with common attribute values and behaviors.

Object View - A philosophical view of geographic space in which space is seen as empty except where occupied by objects. In this view, every spatial location is either something (an object) or nothing.

Organic Matter - Particles of vegetation or other biologic material.

Organic Soil - A soil or that part of a soil containing greater than 20 or 30 percent organic matter (depending on clay content).

Orientation - An object's position or relationship in direction with reference to points of the compass.

Overview Map - A generalized, smaller-scale map that shows the limits of another map's extent along with its surrounding area.

P.

Parallel - An imaginary east–west line encircling the earth, parallel to the equator and connecting all points of equal latitude. Also, the representation of this line on a globe or map.

Parcel - A piece or unit of land, defined by a series of measured straight or curved lines that connect to form a polygon.

Parcel Pin - Acronym for *parcel identification number*. The format of an identifier is defined by the government's organization, and may contain numerical values, alpha characters, or both.

Parcel Type - A classification for parcels, used to provide additional information about them and how they must be treated for least squares adjustment. Standard parcels, blocks, and easements are all examples of parcel types.

Partial Cutting (Thinning) - The removal of a portion of the trees in a stand of timber so as to leave an even-aged or uneven-aged stand of well-distributed residual, healthy trees that will reasonably utilize the productivity of the soil. Partial cutting does not include seed trees or shelterwood or other types of regeneration cutting.

Percent Slope - A measurement of the rate of change of elevation over a given horizontal distance, in which the rise is divided by the run and then multiplied by one hundred. A 45-degree slope and a 100-percent slope are the same.

Percolation - Rate at which water moves through the soil.

Perennial Stream - A watercourse that flows in a well-defined channel throughout most of the year under normal climatic conditions. Includes small creeks up to large rivers.

Permeability - The quality of a soil horizon that enables water or air to move through it. The permeability of a whole soil may be limited by the presence of one nearly impermeable horizon even though the others are permeable.

Point-Source Pollution - A type of pollution that comes from a specific, known location or source. Examples include wastewater treatment plants and industrial discharge outlets.

Polygon - On a map, a closed shape defined by a connected sequence of x,y coordinate pairs, where the first and last coordinate pair are the same and all other pairs are unique.

Polygon Feature - A map feature that bounds an area at a given scale, such as a country on a world map or a district on a city map.

Preharvest Planning - Forest preharvest planning (FPP) is a process that identifies and summarizes pertinent information about a tract of land from which timber will soon be harvested. This information may include applicable environmental regulations; specific attributes related to the site such as topography, soils, and water resources; and details of the timber such as size, species, or accessibility. The primary purpose of preharvest planning is to design a harvest operation that meets landowner objectives while addressing the environmental and operational characteristics of a proposed forest harvest site.

Primary Logging Road - A road designed and maintained for a high level of use, and generally part of a larger, permanent road system on a tract of land. Usually these roads have some type of reinforcing material on the travel surfaces, such as gravel (or clay, for sandy roads) and can sustain usage even during poor weather conditions. These roads should have appropriate ditches and other water-control structures integrated into their design, layout and maintenance.

Pup Trailer - A trailer used for carrying logs, often pulled by a Tri-axle log truck to increase its carrying capacity, while improving maneuverability in the woods and maintaining proper weight guidelines.

Q.

Quadrant - In a rectangular coordinate system, any of the quarters formed by the central intersection of x and y axes that divide a plane into four equal parts.

Query - A request to select features or records from a database. A query is often written as a statement or logical expression.

R.

Range – In spatial statistics, a parameter of a variogram or semivariogram model that represents a distance beyond which there is little or no autocorrelation among variables.

Raster - A spatial data model that defines space as an array of equally sized cells arranged in rows and columns, and composed of single or multiple bands. Each cell contains an attribute value and location coordinates. Unlike a vector structure, which stores coordinates explicitly, raster coordinates are contained in the ordering of the matrix. Groups of cells that share the same value represent the same type of geographic feature.

Record - A set of related data fields, often a row in a database, containing all the attribute values for a single feature. For example, in an address database, the fields that together provide the address for a specific individual comprise one record. In the SQL query language, a record is analogous to a tuple.

Regeneration - The process of forest replacement through natural sprouting of seedlings.

Region - In geography, an area usually distinguished by common cultural or physical characteristics, such as Southern California, Western Europe, or Southeast Asia.

Remote Sensing - Collecting and interpreting information about the environment and the surface of the earth from a distance, primarily by sensing radiation that is naturally emitted or reflected by the earth's surface or from the atmosphere, or by sensing signals transmitted from a device and reflected back to it. Examples of remote-sensing methods include aerial photography, radar, and satellite imaging.

Rendering - The process of drawing to a display; the conversion of the geometry, coloring, texturing, lighting, and other characteristics of an object into a display image.

Residual Trees - Live trees left standing after the completion of harvesting.

Resolution - The detail with which a map depicts the location and shape of geographic features. The larger the map scale, the higher the possible resolution. As scale decreases, resolution diminishes and feature boundaries must be smoothed, simplified, or not shown at all; for example, small areas may have to be represented as points.

Rill Erosion - The removal of soil by numerous small channels only several inches deep. Rills occur mainly on recently cultivated soils or recent cuts and fills.

Riparian Zone - An area adjoining a body of water, normally having soils and vegetation characteristic of floodplains or areas transitional to upland zones. The areas help protect the water by removing or buffering the effects of excessive nutrients, sediments, organic matter, pesticides, or pollutants.

Riprap - Rock or other large aggregate that is placed to protect streambanks, bridge abutments, fords, or other erodible sites from runoff or wave action.

Road Mats - Large wooden pallets which are laid down to create a temporary roadway for log trucks to gain access into or out of the woods; typically used in wet or soft ground conditions on flat terrain. Road mats are also used on decks to set up a safe, stable loading area for trucks.

Rolling Dips - A shallow depression built across a road or trail designed to remove storm water from the road or trail. Also see "Broad-based dip".

Runoff - In forest areas, that portion of precipitation that flows from a drainage area on the land surface or in open channels.

S.

Scale - The ratio or relationship between a distance or area on a map and the corresponding distance or area on the ground, commonly expressed as a fraction or ratio. A map scale of 1/100,000 or 1:100,000 means that one unit of measure on the map equals 100,000 of the same unit on the earth.

Scalping - A form of site preparation work done with a plow or blade which removes unwanted vegetation by cutting and peeling back the upper layer of the mineral soil and forest floor.

Scour - To wash away or remove soil from stream banks by a swift current of water.

Secondary Logging Road - An unimproved road, usually with little or no surface reinforcement. Often these roads are bare dirt or naturally grassed over, and typically can only be used during dry conditions. Even though these roads may be used less frequently, they should still have appropriate water-control structures integrated into their design, layout and maintenance.

Sediment Catch Basin - A small, excavated area in the earth used for temporarily holding sediment-laden water. The basin can stop flowing water to allow for sediment to settle out of the water. The remaining water is then naturally absorbed into the ground.

Sedimentation - The deposition of eroded soil material (sediment) into an ephemeral, intermittent or perennial stream, lake, or other water body. The process of sediment deposition usually resulting from erosion.

Seedbed - The soil prepared by natural or artificial means to promote the germination of seed and the growth of seedlings.

Selection Method - Removal of the mature timber, usually the oldest or largest trees, either as single scattered individuals or in small groups, at relatively short intervals repeated indefinitely in order to encourage continuous reproduction and uneven-aged stands.

Shapefile - A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a set of related files and contains one feature class.

Shovel Logging - A logging system in which specialized equipment and methods are used to harvest bottomlands and wet areas of timber growth. Some trees, after being cut, are laid down on the ground to form a "floating" mat of logs that is then used by traditional skidders to drag newly-cut trees to the loading deck for processing and shipment. Once the mat logs are no longer needed, they are lifted off the ground and processed for shipment. This method of logging substantially improves the number of working days available for harvesting timber in wet areas, and provides greater protection from rutting and other soil damage that may occur on wet sites when they are harvested.

Silt Fences - Man-made fabrics that are strung up to block movement of soil or debris from getting into water. Typically they are installed alongside waterbodies, but may also be used effectively anywhere there is a risk of erosion. Silt fences are temporary structures that can easily be knocked down or washed away by large surges of water or material that result from heavy downpours. Therefore they should be used as one tool available to prevent erosion, and not considered as the only solution. They may be removed once a site is permanently stabilized and the threat of accelerated erosion no longer exists.

Silvicultural System - Process of tending, harvesting, and replacing forest trees, which results in the production of forests with distinct compositions. Systems are classified according to the method of harvest cutting used for stand reproduction.

Site Prep - Any scheduled operation that is used to prepare an area for the re-generation of trees. These operations can be used individually or together, as needed, to prepare a site for tree regeneration.

Skid Trail - Temporary, non-structural pathways over forest soil where felled trees or logs are dragged to a landing.

Skidder - A tractor or piece of equipment specially built for pulling trees that have been cut down. The trees are carried either in a grapple attached to the back of the tractor, or are dragged by a cable and winch attached to the rear of the tractor. Different skidder types include rubber-tired models, with either single tires or dual-tires; track-mounted models; and tandem axle models.

Skidding - Transporting logs or felled trees over the land surface by dragging them. The moving of logs or felled trees from the stump to the log deck.

Slash - The residue, e.g., treetops and branches, left on the ground after logging or accumulating as a result of storm, fire, girdling, or delimbing.

Snag - A dead, standing tree. Snags typically are good habitat for a variety of birds and small animals, and should be left in place if they do not pose a safety hazard of falling down or burning. During burning activities, snags may smolder for a long time after the rest of the fire is out.

Soil - The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

Soil Compaction - Compression of the soil resulting in reduced soil pore space (the spaces between soil particles), decreased movement of water and air into and within the soil, decreased soil water storage, and increased surface runoff and erosion. The use of heavy machinery during forest operations contributes to soil compaction.

Soil Conservation - Protecting and using the soil within the limits of its physical characteristics.

Soil Productivity - The capacity of a soil in its normal environment for producing a specified plant or sequence of plants under a specified system of management.

Soil Texture - The relative proportion of the various size groups of individual soil particles.

SPCA - North Carolina law originally passed in 1973 which limits the amount of sedimentation that can occur during any site disturbing activities. Forestry and agricultural activities were originally exempted from compliance with the law. The forestry exemption was limited in 1989 with the amendment to the SPCA that created the FPG's and the requirement that forestry operations comply with the FPG's or be subject to the full provisions of the SPCA.

Spoil - Excess material removed as overburden (cut) or generated during road or landing construction which is not used within limits of construction as fill.

Stream Order - A term used to classify streams according to stream size, flow and channel structure. There are different types of stream order methods. One of the more widely used methods is provided here as an example (Strahler 1952): A 1st-order stream is the first channeled stream to occur in a watershed, and is fed by ephemeral streams. Generally, these are the smallest perennial streams within a watershed. A 2nd-order stream results when two 1st-order streams combine; A 3rd-order stream results when two 2nd-order streams combine; A 4th-order stream results when two 3rd order streams combine; Generally, streams are classified up to 4th-order. Anything larger than that is usually referred to as a "river."

Streamside Management Zone (SMZ) - A designated area that consists of the stream itself and an adjacent area of varying width where management practices that might affect water quality, fish, or other aquatic resources are modified. The SMZ is an area of closely managed activity, not an area of exclusion.

Streambank Erosion - The scouring of material and cutting of channel banks by running water.

Streambanks - The usual boundaries, not the flood boundaries, of a stream channel. Right and left banks are named facing downstream.

Streambed Erosion - The scouring of material and cutting of channel beds by running water.

Switchback - A 180-degree direction change in a trail or road used to climb steep slopes.

T.

Tank-trap - A series of individual, small-scale sediment catch basins built on a retired skid-trail or road. Tank-traps help slow the flow of water and prevent accelerated erosion. The tank traps collect water temporarily until sediment can settle out of the water.

Terrain - An area of land having a particular characteristic, such as sandy terrain or mountainous terrain.

Thinning - A tree removal practice that reduces tree density and competition between trees in a stand. Thinning concentrates growth on fewer, high-quality trees, provides periodic income, and generally enhances tree vigor. Heavy thinning can benefit wildlife through the increased growth of ground vegetation.

Tolerance - The minimum or maximum variation allowed when processing or editing a geographic feature's coordinates. For example, during editing, if a second point is placed within the snapping tolerance distance of an existing point, the second point will be snapped to the existing point.

Topographic Map - A map that represents the vertical and horizontal positions of features, showing relief in some measurable form, such as contour lines, hypsometric tints, and relief shading.

Topography - The study and mapping of land surfaces, including relief (relative positions and elevations) and the position of natural and constructed features.

True North - The direction from any point on the earth's surface to the geographic North Pole.

Turbidity - The cloudy condition caused by suspended solids, dissolved solids, natural or human-developed chemicals, algae, etc., in a liquid.

U.

U.S. Geological Survey - Acronym for *United States Geological Survey.* A scientific agency of the U.S. government, part of the Department of the Interior. The U.S. Geological Survey is a fact-finding research agency that monitors, analyzes, and provides scientific understanding about natural resource issues and conditions, the environment, and natural hazards. The U.S. Geological Survey is the primary civilian mapping agency in the United States. It produces digital and paper map products; aerial photography; and remotely sensed data on land cover, hydrology, geology, biology, and geography.

U.S. National Geodetic Survey - The U.S. government agency responsible for maintaining the National Spatial Reference System (NSRS), the national coordinate system of the United States.

Unclosed Parcel - A parcel that is only partially defined or that is missing a sequence of one or more lines that would otherwise close the parcel back onto its point of beginning.

Utilization - Branch of forestry concerned with the operation of harvesting and marketing the forest crop.

V.

Vertical Coordinate System - A reference system that defines the location of z-values relative to a surface. The surface may be gravity related, such as a geoid, or a more regular surface like a spheroid or sphere.

Visible Sediment - Solid particulate matter, both mineral and organic, which can be seen with the unaided eye that has been or is being transported by water, air, gravity, or ice from its site of origin. This does not normally include colloidal sized particles.

W.

Water Bar - A mound of soil built across a light-duty road, skid trail or trail, or fireline for the purpose of diverting surface water onto porous forest soil.

Waterbody - Any river, creek, slough, canal, lake, reservoir, pond, sinkhole, or other natural or artificial watercourse that flows within a defined channel or is contained within a discernable shoreline.

Water-control Structures - Any device used to regulate the flow of water and reduce or minimize the potential of erosion to occur. In forestry, examples include: Broad Based Dips, Waterbars, Turnouts/Wing Ditches, Sediment catch basins, Flashboard risers, Check dam

Watershed - A basin-like terrestrial region consisting of all the land that drains water into a common terminus.

Water Pollution - The addition of harmful or objectionable material to water in concentrations or sufficient quantities to adversely affect its usefulness or quality.

Water Quality - A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

Wayfinding - The mental activities engaged in by a person trying to reach a destination, usually an unfamiliar one, in real or virtual space. Wayfinding consists of acquiring information that is relevant to choosing a route, or a segment of a route, and of evaluating that information in the course of travel so the route can be changed as needed. Wayfinding is the cognitive component of navigation.

Waypoint - A location of interest, or a reference point on a route, stored as latitude-longitude coordinates and often captured by a GPS receiver.

WGS72 - Acronym for *World Geodetic System 1972*. A geocentric datum and coordinate system designed by the U.S. Department of Defense, no longer in use.

WGS84 - Acronym for *World Geodetic System 1984*. The most widely used geocentric datum and geographic coordinate system today, designed by the U.S. Department of Defense to replace WGS72. GPS measurements are based on WGS84.

Windrow - Brushwood, slash, etc., concentrated (usually by machine) along a line, to clear the intervening ground for regeneration.

X.

X,Y Coordinates - A pair of values that represents the distance from an origin (0,0) along two axes, a horizontal axis (x), and a vertical axis (y). On a map, x,y coordinates are used to represent features at the location they are found on the earth's spherical surface.

X-axis - In a planar coordinate system, the horizontal line that runs right and left (east and west of) the origin (0,0).

Y.

Yarder - A system of power-operated winches and a tower used to haul logs from a stump to a landing.

Y-axis - In a planar coordinate system, the vertical line that runs above and below (north and south of) the origin (0,0). Numbers north of the origin are positive, and numbers south of it are negative. In a spherical coordinate system, a line in the equatorial plane that passes through 90 degrees east longitude.

Z.

Z-axis - In a spherical coordinate system, the vertical line that runs parallel to the earth's rotation, passing through 90 degrees north latitude, and perpendicular to the equatorial plane, where it crosses the x- and y-axes at the origin (0,0,0).

DATA LINKS

Name	Web Address
NCFS Web Application Portal	http://www.ncforestatlas.com/
NCFS Forestry Preharvest Planning Tool	http://www.ncforestatlas.com/fppt/Index.aspx
North Carolina Forest Service	http://www.ncforestservice.gov/
NCFS Best Management Practices Manual	http://www.ncforestservice.gov/water_quality/bmp_manual.htm
NC Division of Water Resources Riparian Buffer Rules	http://portal.ncdenr.org/web/wq/swp/ws/401/riparianbuffers/rules
North Carolina Department of Agriculture & Consumer Services	http://www.ncagr.gov/
NC Division of Coastal Management (Wetland Type Maps for 37 Eastern NC Counties)	http://portal.ncdenr.org/web/cm/download-coastal-wetlands-spatial-data
U.S. Fish & Wildlife Service (National Wetlands Inventory)	http://www.fws.gov/wetlands/NWI/Index.html
U.S. Geological Survey	http://www.usgs.gov/